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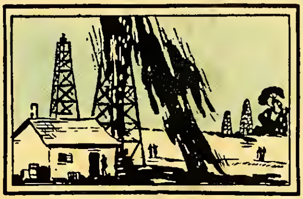

The Ivory Billed Woodpecker

* * *

The Wild Turkey in Louisiana

* * *

Tung Oil—An Old World Tree of Commerce

* * *

Louisiana Turtles

* * *

Department to Issue New Fish Bulletin

Published Quarterly by the
DEPARTMENT OF CONSERVATION

JULY
1932

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VOL. II. **NEW ORLEANS, LA., JULY, 1932** **NO. 10**

The Dietetic Value of Louisiana Sea Food

THE Analytical Department, Louisiana State Board of Health, recently issued the following at a Medical Convention in New Orleans.

"Over half the shrimp caught in the waters of the United States come from Louisiana waters. The greater part of the fresh shrimp are used locally; canned and dried, they are used in the United States and abroad. The part of the shrimp eaten is the muscle (tail meat); it constitutes a high protein food, low in fat, and rich in mineral matter. The protein should be biologically useful since in contains all the essential amino acids. This mineral matter is of high order, and should balance many otherwise deficient diets; the calcium and phosphorus are high; the iron and copper are likewise high, iron being of the same order as beefsteak, and lastly, the iodin content is very high when compared with most foods, Unpublished results show the iodin content of Louisiana shrimp to be considerably higher than their value given in the literature. While the fat content is low, usually around one per cent, it is important for it contains vitamins A and D.

Another aspect of the shrimp industry that should interest medical men, is the fact that shrimp meal which has been sold for many years past to Germany for a cattle food, could and should be used domestically since it averages around 7,000 parts per billion iodin, and fed to cows in the goiterous regions would increase the iodin content of the milk very materially. Cavanaugh of Cornell has shown that iodin fed cows produce a milk 10-15 times richer in iodin than the ordinary milk, and as far back as 1925 recommended that this would be an important item for Certified milk producers to consider."

The Board of Health of the State of Louisiana, being desirous of disseminating correct knowledge concerning the natural resources of our State, relative to food products canned under proper sanitary conditions, takes pleasure in advising our visiting doctors that the dietetic value of canned sea shrimp as set forth in the foregoing statement of its Analytical Department, has the endorsement of the Health Department of Louisiana. Furthermore, the Louisiana oyster is likewise of great nutritional importance, being rich in mineral matter, particularly iodin, iron and copper, and containing Vitamins A, B, C, and D.
—J. A. O'Hara, M. D., President.

Louisiana Conservation Review

Published quarterly by the Department of Conservation in the interest of protection and proper utilization of Louisiana's natural resources.

JAMES P. GUILLOT . . . . . Editor
N. E. SIMONEAUX . . Assoc. Editor
WM. G. RANKIN . . Business Mgr.

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Honey Island as a Park

FORTY years ago Honey Island, on the Mississippi-Louisiana border in the lower valley of Pearl river, was a notorious hide out for train robbers. No surer place could be found to escape pursuit than in that primeval tangle of swamp and bayou, of river and lagoon, upon whose rich soil grew countless varieties of subtropical plants, grasses, vines, shrubs and trees, and whose moist lands were the habitat of innumerable native creatures for whom the place was a veritable Garden of Eden. There was, and is, no more impressive region in the United States, but so wild was it in those days that few then gave thought to its in time becoming one of our nation's pleasure spots, a place to be set aside for both scientific study and nature enjoyment.

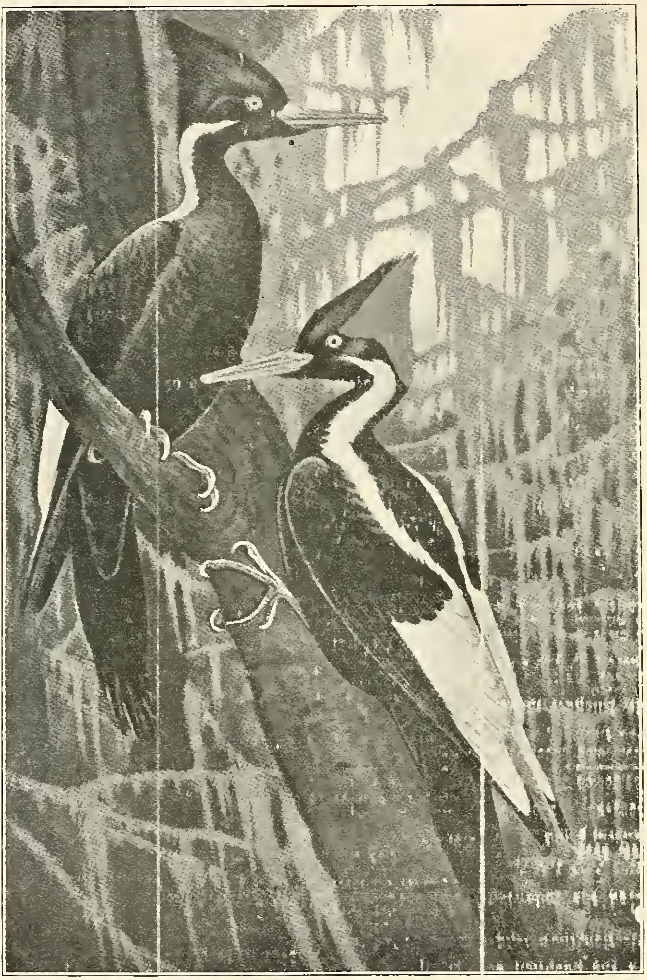
Several years ago conditions in that section had so far developed that The Times-Picayune formally urged the reservation of a large tract in the named region as a desirable park. But today, subsequent to study of the place's remarkable beauties and possibilities by scientists in various branches of study, the plan has been revived and brought up to date, including advocacy of the island as a national park.

So many and so vigorous have been the resolutions to this end that it is reasonable to expect that the next major addition to our governmental preserved area will be the named Honey Island. The prime reason for such an acquisition and allocation is that here, as perhaps nowhere else in the United States, will it be possible to secure a national park site utterly different from those mostly arid sites, already acquired by the federal authorities. The cypress-tupelo jungle gives the impression of some prehistoric region, one so strangely unlike things familiarly seen, that we might expect to encounter therein monstrous sauropoda of the upper Jurassic or rhynchocephalla of the close of the mesozoic period.

The idea would be only to clear this region in such a way that it might be con-

(Cont'd on page 40)

Effective July, 1932, the Louisiana Conservation Review will be published quarterly, in January, April, July and October of each year.



IVORY-BILLED WOODPECKER

(One-third Natural Size)

Left, Female Right, Male

The Ivory-Billed Woodpecker

Rare Bird Considered Extinct--Found In Louisiana

By Margaret A. Coogan

Louisiana shelters one of the rarest birds in the United States—the Ivory-billed Woodpecker, (*Campephilus principalis*).

This bird, the largest and most beautiful of the woodpeckers, was thought to be extinct. Formerly it could be found throughout the Southern States eastward to lower Florida, westward to the Mississippi Valley and up to the mouth of the Ohio. The bird has disappeared since the heavy forests have been cut. The last one reported to have been seen was by an ornithologist six or eight years ago in Florida.

Only after Mr. Mason Spencer, a conservationist and bird lover, while collecting specimens for the Department of Conservation's Museum, shot an Ivory-bill in April, 1932, did it become known that this rare bird still existed in Louisiana.

As soon as Mr. Armand P. Daspit, Director of Fur and Wild Life Division of the Department of Conservation received the specimen, he notified Dr. T. Gilbert Pearson, President of the National Association of Audubon Societies in New York. Dr. Pearson, who had been searching for the Ivory-bill since 1891, immediately planned a trip to Louisiana to see the living bird.

On the Morning of May 11, Dr. Pearson, accompanied by Mr. Ernest G. Holt, Director of Sanctuaries for the Audubon Societies, arrived in New Orleans. They were met by Mr. Armand P. Daspit and Mr. Edward F. Woods, Assistant Director of the Enforcement Division of the Department of Conservation, and after a visit to the Department's Museum in Royal Street, where the specimen collected by Mr. Spencer is mounted and placed on exhibition, started on their journey to a heavily wooded section of the State in search of the Ivory-billed Woodpecker.

The party in search of the Ivory-bill spent one week traversing the innermost forest of the region inhabited by a small colony. They watched from a distance of 75 to 100 feet. The birds were feeding on stumps of rotting trees, the tops of which had been broken off. A favorite place for feeding is also on dead limbs at or near the tops of the very tall sweet gum trees found abundantly in this region.

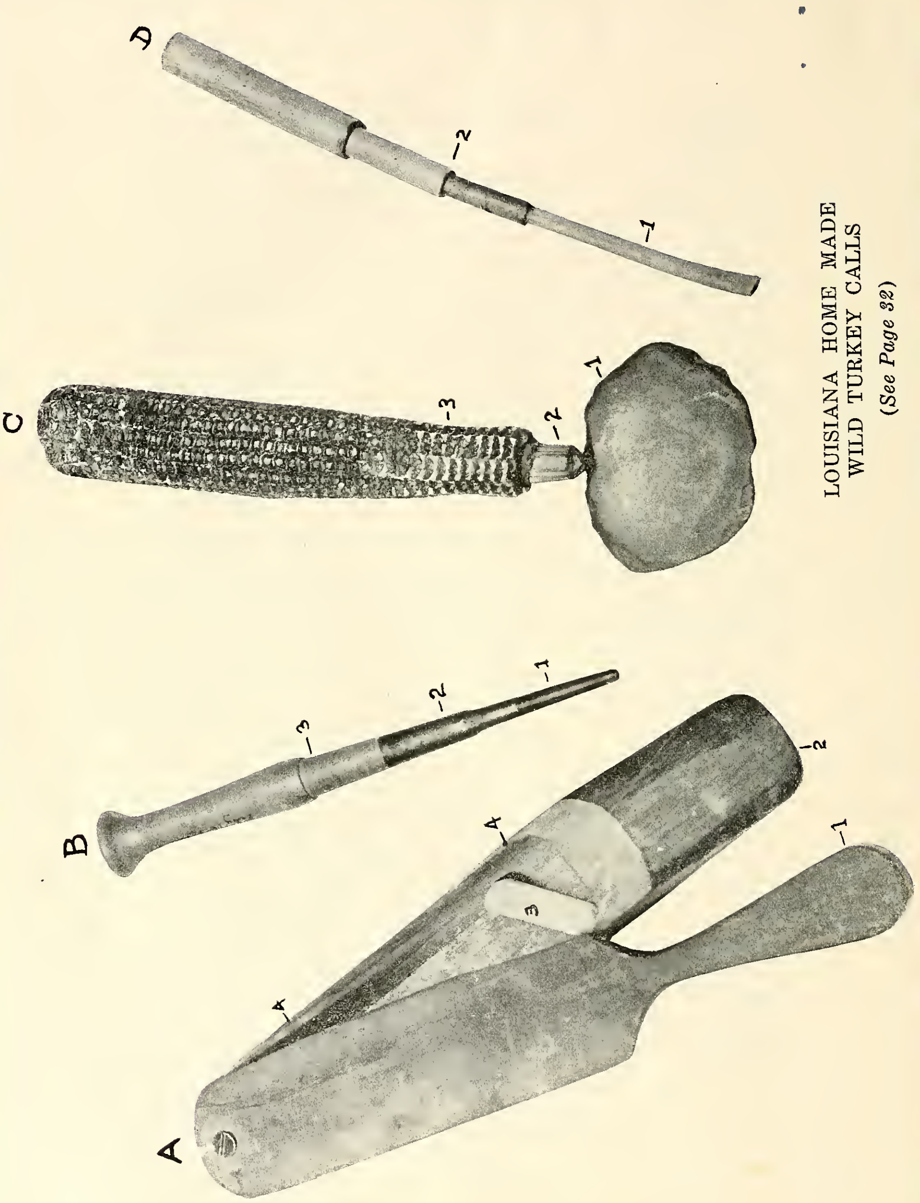
The bird's note is a peculiar nasal "yank," not repeated three times as Audubon states, but as many as from one to fifty times in a few minutes. It was by this cry that the bird was traced and followed from one place to another in the forest.

In appearance the Ivory-bill has a longer neck than any of the other woodpeckers. It has large black and white patches on the wing; the bill is longer than the head and has the appearance of polished ivory; the extended crest of the male is red, while that of the female is black.

The food of the Ivory-bill consists largely of wood-boring larvae and carpenter ants which it secures by scaling off the bark of dead pines. Occasionally it feeds on the ground like a Flicker or on wild fruits. The bird is never destructive nor sufficiently numerous to be an important economic factor. It nests in a cavity, often in a live cypress but sometimes in a dead pine or live oak, the opening of which is usually an oval. The nesting period extends from February to April. There are from three to five glossy white eggs, somewhat larger than those of the Pileated Woodpecker.

Dr. Pearson returned to New York with his ambition realized. He saw the Ivory-billed Woodpecker after a search of forty-two years. Mr. Holt remained in Louisiana to make a study of some of the other rare birds of the State—the Roseate Spoonbill and the Whooping Crane.

The Department of Conservation will not issue any permits for the trapping or killing of this rare bird. An agent has been designated by the Department to protect this particular colony of Ivory-bills.



LOUISIANA HOME MADE WILD TURKEY CALLS

(See Page 32)

THE WILD TURKEY

ITS HUNTING AND FUTURE IN LOUISIANA

Wild Turkey Facing Extinction

By E. B. COPE

THE WILD TURKEY! What a thrill goes through the average hunting devotee at the very thought of lining up one of these noble birds through the sights of a rifle or along the matted rib of his trusty old scatter gun. For, though deer, bear, or some other species of the big game that inhabit this continent have often proved alluring to the hunter, true sportsmen would far rather kill a wild turkey.

When the Pilgrim Fathers landed on the Atlantic Coast and proceeded to carve, with hymn book and bell mouth blunderbus, a colony out of a primeval wilderness, wild turkeys ranged from the Southern border of Canada southward into Mexico. The descendants of these Pilgrim Fathers, with typical American wastefulness and lack of foresight, hunted this great bird in and out of season. No thought was given to the proper protection and propagation of the wild turkey for the coming generations. The size and delicious flesh of the bird made it the quarry of every pot hunter, market gunner, and poacher throughout the land.

Louisiana, at a time not so long ago, boasted an abundant supply of these great game birds. Ruthless hunting, however, both in and out of season, the advent of the automobile, the motor boat, and the aeroplane, as well as intensive lumbering operations throughout the State, have all contributed to a gradual restriction of its natural habitat and a sure decrease in the number of the wild turkey, with the result that today this bird is facing extinction.

EDUCATION AND COOPERATION

Conservationists realize that, unless immediate steps are taken to properly propagate and protect the turkey, it will meet the fate of the passenger pigeon, the bison, and the prong horn antelope—wild life which was once plentiful in this country but which is gradually disappearing as civilization encroaches upon its natural haunts. So, though strict enforcement,—such as is now practiced by the enforcement division of the Department of Conservation, under the able direction of Mr. J. B. Dauenhauer, Jr., who is especially fitted for this position by his previous experience as a law officer,—is necessary to assure proper protection and propagation, the main problem today is one of education and cooperation.

A citizenry educated to the necessity of practicing conservation would not look with indifference upon violations of the game laws and encourage such violations by the purchase of the wild game sold by poachers. It would discourage violations by insisting, through public sentiment, that respect be shown the conservation laws, enacted for the assured future of our wild life and natural resources. With such cooperation on the part of the law enforcement officials and the sportsmen of the various parishes in which wild game ranges, the department would not have to continue its uphill fight for the present and future of Louisiana's wild life. There would be no reason why Louisiana should not resume her former place as one of the greatest game states in the Union or should not again be able to point with pride to the opportunities offered the hunter.

Ruthless slaughter of wild life and of flocks of wild turkeys is due largely to a lack of cooperation. The department's attention has been repeatedly called to the fact that serious violations occur, especially during the close seasons, in certain sections of the state, but though they have immediately sent representatives to investigate these reports, enough evidence to warrant arrests has not been, in most instances, obtainable. If wild turkey flocks were left undisturbed during these close seasons, undoubtedly they would double in numbers before the next hunting season, for Louisiana offers many natural propagating places for this great game bird.

HISTORY

There seem to be no authentic records of the wild turkey's existence in Europe, Asia, or Africa previous to the discovery of America, although some of the older writers appear to confuse the turkey with the jungle fowl and the peacock. One writer expressed the belief that the turkey at one time existed as far south as Brazil. However, as it is the opinion of scientists and "wise men of the wilds" that the wild turkey is a native of North America only, this Brazilian turkey was probably not the same bird at present extant in the United States.

PROPAGATION

Mr. Charles L. Jordan knew the wild turkey probably better than any other man in the United States. Shortly before his death, Mr. Jordan began a book on turkeys entitled, "The Wild Turkey and Its Hunting," interrupted when he was murdered while manager of the Morris game preserve near Hammond, Louisiana, which was completed and published by Mr. E. A. McIlhenny, a well known pioneer in the cause of wild life conservation in Louisiana. Quoting from this book I give the author's view on the simplicity with which the wild turkey can be propagated:

"Any suitable community can have all the wild turkeys it wants if it will obtain a few specimens and turn them into a small woodland about the beginning of spring and spread grain of some sort for them daily. The turkey will stay where the food is abundant and where there is a little brush in which to retire and rest.

"It has frequently been stated that the wild turkey will not live and propagate within the haunts of man. This depends upon how the birds are treated. No bird nor animal can survive eternal persecution. There is no trouble about the birds thriving in a settled community if the proper territory is set apart for their use and proper protection given. The territory should consist of a few acres of woodland or of some broken ground, thicket, or swamp, to afford a little cover. In such a retreat a trio of wild turkeys may be turned loose; in a few years, if properly protected, the vicinity would be stocked with them."

Mr. Jordan tells us further that the South is well fitted for the raising of these game birds:

"There are thousands of acres in the South which were once cultivated, but which are now abandoned and growing up with timber, brush, and grass. Such country affords splendid opportunities for the raising and perpetuating of the wild turkey. These lands are vastly more superior for this purpose than are the solid primeval forest, in as much as they afford a great variety of summer food such as green tender herbage, berries of many kinds, grasshoppers by the millions, and other insects in which turkeys delight. Such a country also affords good nesting retreats, with briar patches and straw where the nest may be safely hidden and where the young birds may secure safe hiding from animals and birds of prey, but alas! at present not from trappers, baiters, and pot hunters. Check this, and the abandoned plantation of the South would soon be alive with turkeys."

The dense swamps found along most of the river bottoms in Louisiana, offer ideal natural sanctuaries such as are rarely found elsewhere in the South. Experiments undertaken by the State of Pennsylvania have clearly proved that the wild turkey, as Mr. Jordan states, increases abundantly under the protection of proper conservation laws and properly directed propagation. Therefore, since nature has given to Louisiana these proper propagating places and the legislature has given to us the proper laws, there is no reason why the wild turkey should become extinct in this State, except for the fact that the needed cooperation has not been secured.

The Department of Conservation has contemplated closing the hunting season on this game bird for several years. Many old hunters have decried the present open season, which extends from March 5 to April 5, as it is the "gobbling" period when the turkey is preparing to mate and is very susceptible to the lure of a good caller. However, the season is so short, and the country where the few remaining turkeys in the State range is so difficult of access, that the department believes little, if any, harm may result from the present open season.

Too, if the big lumber companies in Louisiana would lend their holdings for the propagation of the wild turkey, great good would result. With the combined help of the proper legislation, needed education, and the desired cooperation wild turkeys should propagate rapidly in our State and their future would be indeed assured.

BREEDING AND HABITS

Charles Jordan, in Mr. McIlhenny's book, particularly stresses the necessity of sparing some of the old gobblers of every flock, stating:

"I have ample evidence that wild turkeys will not shrink from civilization. It is the trapping, snaring, baiting, and killing of all old gobblers that decimates their numbers, not the legitimate hunting by sportsmen."

His comment on the tendency of the wild turkey to breed with tame stock is as follows:

"In countries thickly settled, as in the one where I now write, there is a great variety of wild turkeys scattered about in the woods of the small creeks and hills. Many hybrid turkeys are killed here every year. The cause is: every old gobbler that dares to open his mouth to gobble in the spring is within the hearing of the farmers, negroes, and others, and is a marked bird. It is given no rest until it is killed, hence there are few or no wild gobblers to take care of the hens, which then visit the domestic gobbler about the farmyards. This crossing with the wild one is responsible for a great variety of plumages."

Wild Turkey killed by Arthur Koeppe, patrolman, Forestry Division; weight, 18½ pounds; beard, 11 inches; killed in Pearl River Bottom, 5 miles from Pearl River Station; season of 1932.

This being the case, Jordan comments further, selective breeding would restore the wild stock, and if man would leave this wild stock alone for a short time, it would increase rapidly, for the inbred wariness of the turkey offsets any inroads that its natural enemies might make. Most old turkey hunters, who have had difficulty in outwitting the wily turkey, agree that, because of this inbred wariness, the turkey should thrive with the proper protection and feeding, and every one of these hunters, undoubtedly, have good reason for upholding their convictions. They are almost unanimous in their belief that the turkey is one of the hardest of all game birds to hunt. Jordan's remarks along this line are as follows:

"Early morning, from the break of day until nine o'clock is the very best time during the whole day to get turkeys; but the half hour after daybreak is really worth all the rest of the day and this is the time to be in the depths of the forest. One should be near their roosting places if possible, listening and watching for every sound and motion. If in the autumn or winter you are near such a place, you are likely to hear as day breaks the awakening cluck at long intervals; then will follow the long gentle quavering call or yelp of the mother hen arousing her sleeping brood and making known to them that the time has arrived for leaving their roosts."

Hunters' Experiences

Several years ago, in company with my wife and a friend, I was hunting quail near Alton, Louisiana. I was using a rascally old Irish setter whose chief tendencies were to whip every dog he met and to tear apart anyone who, to his way of thinking, was not showing the proper respect due me. Regardless of these faults, however, this old scamp had a wonderful nose and was a great help on hunting parties. On this particular occasion he was trailing through the chin-high grass on what I thought was a quail scent. One hundred yards to my right was a branch in which wild turkey had been killed during the previous week. Approximately one hundred and fifty yards to my left was an apparently deserted house, fenced about by snake fence. Suddenly the old Irish setter swerved to the left on a hot scent. Immediately, to my astonishment, a flock of six or eight turkeys burst out of the tall brush and flew to the fence. There they rested, turning their heads to watch the dog. Apparently they were unconscious of the fact that my friend and I were concealed behind the brush.

After a brief inspection of the dog, they dropped to the ground inside the fence. By this time I had changed my shells, preparatory to taking up the trail, but I suffered an attack of plain cold feet, for I concluded they were tame turkeys belonging to the distant house. So I left the turkeys without further investigation, much to the old setter's disgust. To this day, however, I often wonder if I did not throw away a good chance to kill a wild turkey.

Captain John K. Renaud, Confederate Veteran, all around out-

(*Continued on page 32*)

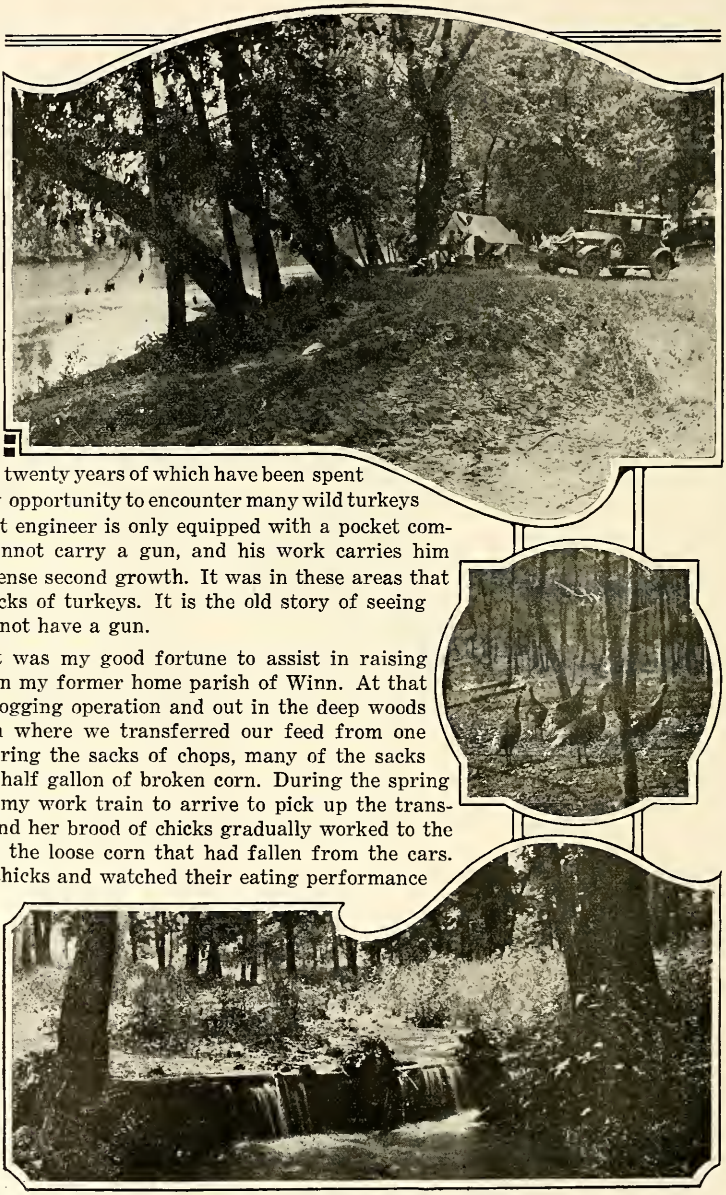
Occurrence of the Wild Turkey in Louisiana - - - -

By V. H. SONDEREGGER
State Forester

THE wild turkey in Louisiana, as well as in all Southern States, thrives best in the natural forested regions that have a good ground cover of shrubs and grasses. The undercover of a forest is particularly valuable for the propagation of wild turkeys as the greatest amount of food the turkeys utilize is the berries and seeds from several of the trees and many of the bushes.

As a forest engineer operating in the Southern states for twenty-two years, twenty years of which have been spent in Louisiana, it has been my opportunity to encounter many wild turkeys during this period. A forest engineer is only equipped with a pocket compass and field book and cannot carry a gun, and his work carries him into the virgin forest and dense second growth. It was in these areas that I encountered the many flocks of turkeys. It is the old story of seeing much game when one does not have a gun.

About ten years ago, it was my good fortune to assist in raising two flocks of wild turkeys in my former home parish of Winn. At that time I was in charge of a logging operation and out in the deep woods we had a railroad junction where we transferred our feed from one car to another. In transferring the sacks of chops, many of the sacks leaked from a handful to a half gallon of broken corn. During the spring months, while waiting for my work train to arrive to pick up the transferred feed, a turkey hen and her brood of chicks gradually worked to the railroad switch and fed on the loose corn that had fallen from the cars. I was able to count eleven chicks and watched their eating performance before I was noticed. It was interesting to note when my presence was observed how the old hen disappeared in the brush and the chicks partly followed her and stopped, crouching flat to the ground. I remained quiet for a half hour and it was interesting to hear the way the hen called her chicks and the way they answered her and gradu-



Haunts of the Wild Turkey in Louisiana.

ally collected around her in the distance and disappeared.

From that day on I saw to it that a certain amount of feed was scattered and these turkeys never failed to show up for their meals within a half hour after the train left. This performance was again repeated the following year and two hens with nineteen chicks were my guests. However, the unfortunate part of the affair took place that fall when either my employees or the local residents became aware of the flocks and proceeded to kill them. For a period of two years these turkeys had disappeared back into the swamps, as I discovered later.

There is no question that the wild turkey of Louisiana has been rather ruthlessly destroyed by hunters who did not appreciate the sport or the enjoyment of real wild turkey flesh.

In addition to the shortage of turkeys for the past ten years, the forest fire situation has been one big factor of the reduction of the wild turkey development. Turkey eggs are usually hidden in the dense forest and brush, and this material is very susceptible to fire and, naturally, the results are that many of the eggs and chicks are killed each spring from the effects of these fires.

The forest fire problem is well in hand on over ten million acres of Louisiana's forested lands. The rangers of the Forestry Division of the state report that in all areas where they are obtaining forest fire protection, there is no question that the turkeys are coming back.

Forest Ranger E. M. Thornton in charge of the area of Union and Morehouse Parishes reports that eight wild turkeys were killed during the past season. From information obtained from Mr. Thornton, there are, at least, fifty known turkeys to be found in the forests of his region.

In addition to the piney wood areas mentioned above, the region constituting Madison, Richland, and the two Carroll Parishes are reported to have more turkeys than any other section of the state.

In the Northwest section of Louisiana, Assistant Ranger J. A. Frazer reports about fifty head of turkey in the woods, and further states that this year none of these birds have been killed. This is due to the fact that there are very few people living in this area and a greater portion of it is cut-over and coming back with young trees and heavy undergrowth.

Wild turkeys have been reported in the central part of Louisiana, particularly in Winn Parish along the Dugdemona bottoms, also in the Castor Creek bottoms covering Caldwell and LaSalle Parishes. As one travels toward the larger towns and cities of central Louisiana, the turkeys are rare and very few reports show that turkeys are to be found.

In South Louisiana on the State Forest of six thousand acres that have been protected for the last ten years against hunting, the turkey colony has been building up. In Southwest Louisiana wild turkeys are grouped in the areas protected against fires, particularly in the branch bottoms that feed into the Calcasieu River and those bottoms that feed into Sabine River. Turkeys are not propagating well in this area, due to being extensively hunted, and there is no question that they will be gradually killed out if some protective measure is not established to give them a closed season for a period of years to permit them to increase their flocks.

The most interesting area in the state with reference to the larger center of population is the Florida Parishes, because this area can be reached from New Orleans within four hours at any point. This region contains the largest number of turkeys in the state for its size.

Wild turkeys are to be found in the rough woods and bottoms of St. Helena and Livingston Parishes, particularly where the undergrowth is heavy and dense.

I am indebted to Mr. Dan Houze, who has the reputation of being one of the best turkey hunters, for a great deal of information as to the habits of the wild turkey in Livingston Parish.

Turkeys are also found in the dense hardwood bottoms bordering the lake and on the rivers that enter into Lake Pontchartrain in St. Tammany and Tangipahoa Parishes. Over fifty turkeys have been reported killed in this area this past year. There is another interesting area and that is the water sheds of the Pearl River, particularly the Honey Island region which starts at the junction of Pearl and Bogue Chitto Rivers, which forms the head of the island.

With the above information given by the employees of the Forestry Division considered as reliable, and with my personal observation of the wild turkeys in their natural habitat for the past twenty years, will say that Louisiana can rebuild the wild turkey of the state with the following program:

That, the hunting of the turkey be regulated by establishing a closed season of different lengths, in accordance with the conditions of the region;

That the sportsmen give greater attention to the forest fire condition in the state and assist the Division of Forestry of the Department of

(*Continued on page 37*)

Old Natchitoches, The City Beautiful

By GRACE TARLETON AARON
Natchitoches, Louisiana.

Beautiful landmark of old Louisiana
Harboring charms of the past,
Quaint little city of Natchitoches,
Long may your heritage last:
The city where cherokee roses
Still cling to the banks of a stream
While the dust of its founders is resting
Where their progeny labor and dream.

Here where a winding lake waters
Mirror your beauty sublime
The balconied mansions of long ago
Battle the enemy, Time;
In your midst there's a lovely cathedral
With grey domes facing the skies
Though the years of nearly a century
Have echoed its prayerful sighs.

There's a trace of a long-lost art
In the glimpse of spiral stairs
And many a painter's brush has caught
The glamour that lingers there.
Nearby is the site of Fort Natchitoches
Where Indians and Spaniards once bled
And lost to the brave St. Denis
Who lies with the honored dead.

Man has widened your narrow streets,
For Progress goes marching on,
But here and there an historic spot
Stands and salutes the dawn.
Onward, romantic old Natchitoches,
Forward with each generation—
May your noble spirit of yesterday
Be a guiding inspiration!

An Old World Tree of Commerce[*]

Firmly Rooted in the New World, the China Wood Oil Tree Holds the Lure of Great Possibilities

By INEZ HALE MCDUFF

Cluster of tung oil flowers.

Near Tallahassee stands the oldest tung oil tree in Florida, leased to the United States Department of Agriculture for experimental purposes.

On the brow of a sloping hill near Tallahassee, Florida, there stands a large tree with a smooth, gray trunk and angular branches. It is enclosed within a small square by a rusty iron fence bearing a metal marker with an inscription. The ground around it is covered with fallen leaves, curving dried hulls of large round nuts, and withered husks of nut meats divided into symmetrical sections.

Scattered here and there over the pasture in which it stands and through its fringes of woodland are growing trees of the same type. A short distance to the south is an irregular hedge of them which some observer has planted, perhaps to express an inarticulate appreciation of beauty.

It is the Chinese tung oil tree, often known as the China wood oil tree and its successful naturalization in the United States completes an important experiment begun by the United States Department of Agriculture a quarter of a century ago. The tree within the little enclosure is the first tung oil tree planted in Florida and is one of the first to grow to maturity on the North American continent. It was planted in 1906 by the late William H. Raynes, an enthusiastic amateur horticulturist, from seed furnished by the Department of Agriculture.

Tung oil, derived from the tung nut, has been a valuable commodity in China for more than five thousand years, but it was not introduced into the United States until 1869 and did not come into general industrial use until 1905. It is now the fourth largest chemical import which reaches the United States, over twelve million gallons, one hundred million pounds, being shipped to this country annually from the ports of Hankow, Shanghai and Hong Kong.

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*From the American Forestry Magazine.

The beginning of a tung oil grove near Gainesville, to augment the 8,000 acres of young trees now growing in the southeastern states.

The increasing difficulty of securing adequate and unadulterated supplies of the oil for use by American industry prompted governmental officials to initiate a series of experiments in the early part of the twentieth century in the hope that the tung oil tree might prove adaptable to conditions on the North American continent and be eventually grown on a commercial scale. There are now 8,000 acres of tung oil groves in the southeastern states, with hundreds of thousands of young plants in nurseries, but commercial production of the oil is as yet confined to northern Florida. State authorities estimate that this acreage will have to be multiplied many times before the present requirements of American industry are fully met.

The tree was first planted in California, and shortly afterward it was introduced into Alabama, Georgia, Louisiana, Mississippi, North and South Carolina, Florida and Texas. Plants and seed were distributed for a number of years. These early experimental plots were highly valuable in demonstrating which sections of the United States were suited to the growing of the tung oil tree, but thus far Florida is the only State in which it has continued to grow and produce under conditions which warrant commercialization of the project. The Department of Agriculture advises its planting in a very narrow strip along the northern Gulf Coast and in the extreme southeastern and southern parts of Georgia, but as yet commercial production has been confined to the north central portion of Florida.

Of special interest is the observation that this particular area is on the same parallel as the region in which tung oil trees have been grown for thousands of years in China, with similar temperature, rainfall and general climatic conditions. Opinions differ as to the minimum temperature which the trees will stand, but those which mature and bear with success are not subjected to a temperature lower than twenty-five degrees above zero, and that infrequently. The age, health and environment of the plants are important factors in combating low temperatures.

American-grown tung oil at present comes from *Aleurites fordi,* which is the hardiest and most valuable species of the genus. It is native to the provinces lying adjacent to the Yangtse River in central and western China, and it grows extensively there under primitive methods of cultivation or without cultivation. *Aleurites montana,* growing in southeastern China, is less hardy and does not bear prolifically. However, it is thought by many to be more suited to the extreme southern portions of

A young tung oil tree bearing fruit, which is about the size of a small apple, each nut containing from three to seven seeds.

Florida than the *fordi*. *Aleurites trisperma* grows in the Philippine Islands, producing a limited amount of oil of secondary quality, and *Aleurites cordata,* which grows in Japan and Formosa, also produces an inferior oil in small quantities. *Aleurites moluccana* is widely scattered through the tropics under various names, but it has not been adapted to commercial use. The *fordi* produces more than ninety per cent of China's exported tung oil.

In the spring, terminal buds, which may be either fruit buds or leaf buds, are formed at the ends of the branches grown during the preceding season, and in early experiments it was found that these buds are affected favorably by the application of suitable fertilizer early in February. The Chinese trees are said to bear a single nut at the terminal, but the cluster type has been developed in this country, thus materially increasing the yield of each tree.

The flowers are either staminate or pistillate—male or female—but both are found on one tree. Since only pistillate flowers develop into fruit, trees which regularly bear pistillate flowers in clusters are of course the most desirable for commercial use, and it has been demonstrated by experiments that seeds from such trees retain this cluster fruiting characteristic in more than ninety per cent of their plantings.

Fourteen-year-old tung oil trees on the grounds of the Florida State Agricultural College. The trees are planted too close together for satisfactory results.

Following the flowers the foliage appears in clusters of large dark green leaves, each roughly heart-shaped, and from them the Chinese name of the tree, *tung-yu-shu,* is derived,*tung* meaning "heart." The tree is quite ornamental, as it grows to a height of twenty-five feet or more, with an equal spread. Its peculiar branching habit, however, large catalpa-like leaves and mass of early blossoms, give it a unique appearance.

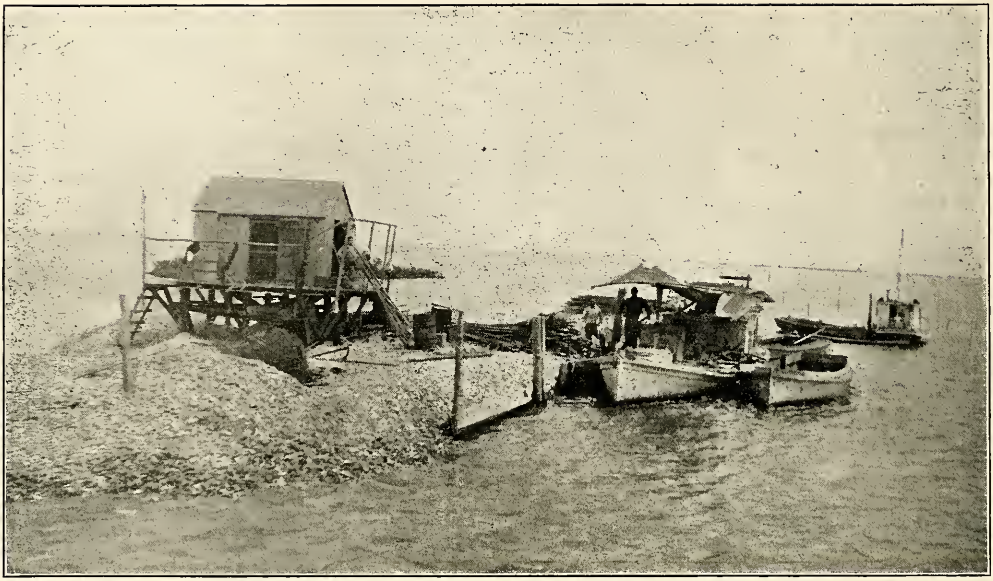
The fruit averages about the size of a small apple, each nut containing from three to seven seeds, and it is a dark olive green, turning to dark brown as it matures. The seeds resemble castor beans in appearance, and their meat is white and very oily. In the early autumn the nuts ripen and drop to the ground, where they sometimes burst open from the base upward and expose the seeds.

In China it is customary to knock the fruit from the trees before maturity, collect it and allow it to ferment until the husk can be easily removed. This is highly injurious to the quality of the pressed oil. The Chinese perform by hand all of the work of gathering the fruit, drying, hulling and cracking the nuts and pressing the oil from the seeds, using the crudest and most laborious methods. This renders the proportionate quantity of oil from a given crop small and the quality inferior. The Chinese oil varies so much in quality and is so frequently adulterated that no American manufacturer will accept a tank for unloading until it has been thoroughly tested.

After experimenting with several methods, a scientific mechanical pressing plant was perfected and put in operation near Gainesville, Florida, in 1929. Here the complete unit of the plant, requiring the services of only a few men, performs the work that is done by hand in China by from 700 to 1,000 men. The American oil is not touched by human hands after the nuts enter the decortication machine. This new press reduces the oil content of the residue to about five per cent, as contrasted with twenty per cent the Chinese leave in the cake after operating their small wooden hand presses. The American oil is light-colored, neutral as to acid content, and has a much better chemical analysis than the imported product.

During the first season of the plant's operation 100,000 pounds of tung nuts, yielding 20,000 pounds of American-grown oil, were handled. As yet most of the nuts produced have been used for planting purposes, but when full production of

(*Continued on page 35*)



Typical oyster camp including lugger and skiffs.

Possibilities of Oyster Culture on the Pacific Coast - -

By A. E. HOPKINS
Aquatic Biologist, United States Bureau of Fisheries (In Charge, Puget Sound Oyster Laboratory, Olympia, Washington)

THE visitor to the Pacific Coast States is frequently impressed, or even amused, by the small size of the oysters. One soon realizes that because of their size they are ideally adapted to use in cocktails, and that their superior flavor is responsible for their reputation as a fine delicacy.

This species—Ostrea lurida—is usually called the Olympia oyster, for most of them are produced in the southern portion of Puget Sound, in the vicinity of Olympia, Wash., although they are grown to some extent in other waters in Washington, as well as in Oregon, California, and British Columbia. Near Olympia, the growers have developed a unique and highly effective method of oyster culture, such as is used nowhere else in the United States.

The natural oyster beds were a constant source of food for the Indians long before the day of the white man. The Indians did not cultivate the oyster grounds extensively and depended upon Nature to provide an ample crop.

As the white population grew the natural beds were taken over from the Indians, and the demand for oysters grew until the grounds began to show signs of depletion. A very cold winter would freeze and kill a very large portion of the crop, or an unusually hot summer would destroy a great number of small oysters.

Some of the growers observed, that, wherever the oysters were always covered with water in pot-holes or depressions at low tide, they were able to survive severe weather conditions. Then began a period of experimentation which resulted in the development of dikes made of concrete or creosoted lumber which maintain a depth of four to six inches of water over the oysters at low tide.

The new method made it possible to raise oysters not only on the natural oyster beds, but also upon bottom which was previously barren. The effectiveness of these dikes is well shown by the fact that the Olympia growers have maintained a profitable industry while in Willapa Bay, where dikes are not used, the once flourishing natural oyster beds have been almost entirely depleted.

However, the great demand for these oysters, and the consequent strenuous working of the beds, along with several seasons during which few seed oysters were caught, have reduced the crops greatly during recent years. To rehabilitate the industry more effective methods of seed oyster production are imperative.

For the purpose of making an intensive study of the biology of this oyster as a basis for the development of new methods of propagation, the National Bureau of Fisheries, and the State Department of Fisheries, of Washington, have cooperated in establishing the Puget Sound oyster laboratory at Olympia. Here the life history of the oyster, the conditions of the water in temperature, and salinity, and related matters are being studied.

As contrasted with the oyster of the Atlantic Coast, the Olympia oyster is bisexual or hermaphroditic, and during the Summer both eggs and spermatozoa may be found side by side in the body of a single individual. As yet, it is not known, whether a specimen can fertilize its own eggs.

When the eggs are ripe, and proper temperature conditions obtain the oyster spawns, discharging the eggs from the body proper into the outer chamber next to the gills. Sperms from an oyster which spawns as a male are free in the surrounding water and enter between the open shells of the egg-bearing specimen, fertilizing the eggs.

The eggs develop into embryos and then into swimming larvae, each with a small protective shell. The young embryos are white, but the shell larvae are gray, and they grow and develop in the brood chamber of the mother for an unknown period, perhaps in the neighborhood of two weeks.

Counts have been made which show that an oyster about one and a half inches in diameter may bear as many as 350,000 larvae in its brood chamber at one time. It is probable that a specimen bears two or more broods each season.

Finally, the larvae are released from the brood chamber into the water, where they are free to swim about and be carried back and forth by the tides while they grow, within perhaps about two weeks more, to mature larvae. Then if they have not been eaten by various animals or thrown upon the shore and killed by the sunshine, they are ready to come into contact with some hard object and "set."

The small larvae take hold of the hard surface, stick themselves to it, lose their swimming organ, and begin to grow the typical oyster shell. They are called spat at this stage, and young spat may be readily identified under the microscope.

Early in the summer, shortly before they expect setting to begin, the oyster growers spread

(*Continued on page 37*)

"Culling."

TURTLES (Order Chelonia)

By ANNA A. CASTEIX
Fisheries Division

THE TURTLE has high market value, and holds an important place in the fish industry of the State of Louisiana. In this State the species consists of the two types of Snappers (Alligator Snapping Turtles and the Common Snapping Turtles), the several types of so-called Slider Terrapins, the closely related Diamond Back Terrapin and the Soft Shell Turtles. These species are all edible and have a fine flavor when properly prepared for cooking .

All Louisiana species are omnivorous, that is, vegetarian and animal feeders, feeding on clams, fish, fiddler crabs, frogs, snails, crayfish, earthworms, as well as upon aquatic plants and grasses which grow near the water's edge, and on green vegetation such as lettuce, etc. They are all semi aquatic, leaving the water to deposit their eggs, either in the mud or sand.

They are incased in horny skin plates, somewhat like a box, the lower shell being boxlike and the upper shell the cover. The lower shell or plastron is attached to the breastbone, while the uppershell or carapace is attached to the backbone; together they form a complete protection for the turtle's body.

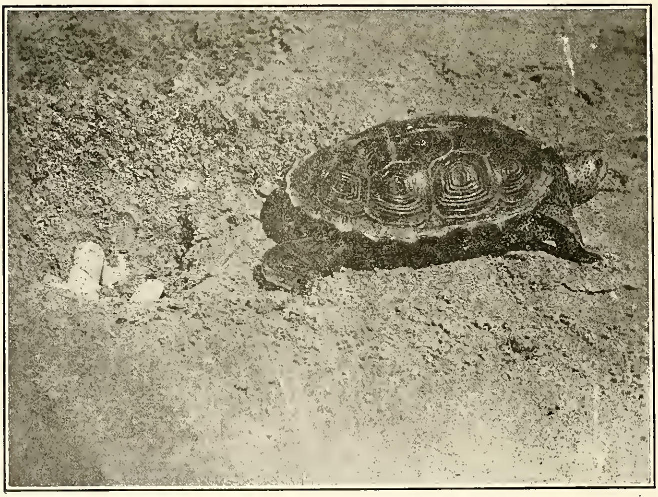
All turtles are sluggish in their movements, dragging their bodies along when moving, their sole protection being their shell upon which they depend rather than upon any swift movement for their means of escaping. When alarmed they withdraw their heads, legs and tails under their shell, thus affording them protection against their enemies. By nature they distrust mankind.

The heads are stocky and thick, while their jaws are hard and horny, and without any teeth. The eyes are bright with no eyelids, but have a skin which comes up from below, covering the eyes completely.

During the winter months they hibernate, burying themselves into the mud or sand; they remain in this lethargic state until the first warm days of March, but do not become active or take food until the month of April, when mating and egg laying begins, varying according to the species. This period of activity ends in the month of October, but never any later than the first days of the month of November, depending entirely on weather conditions.

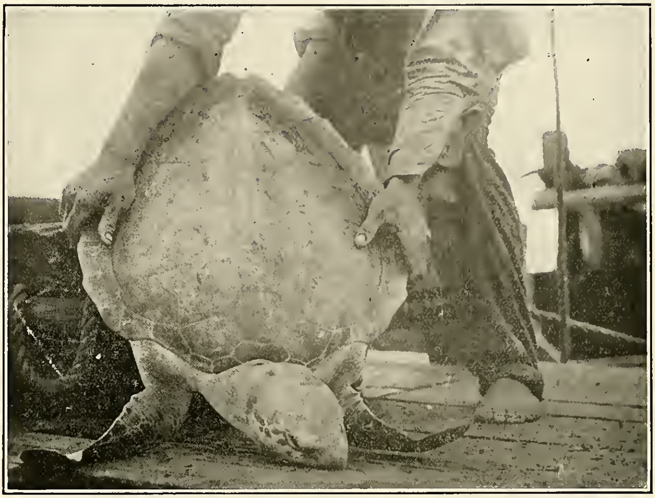
The incubation period is not definitely known, varying with the temperature; this period covers from four to six weeks with respect to the majority of Louisiana Turtles.

Turtles are reproduced by means of eggs which are deposited either in the mud or sand, depending on the species. They leave the water to migrate to some nearby bank of marsh, stream or pond to deposit their eggs, which are considerable in number. Egg laying time being during the months of April and June. However, some species of turtle migrate quite a distance before depositing their eggs.



A Diamond Back Terrapin depositing its eggs in the sand.

The female leaves the water in search of a place to start her nest, and when a soft muddy spot is found she begins to dig herself into this mud or sand until covered, and starts depositing her eggs. She never digs too deep but that she may stick her nose out of the mud or sand. This process takes from five to ten days, laying from 15 to 50 eggs. These eggs are round and protected by a hard, tough skin. When old mother turtle has deposited her eggs, she emerges from her nest, raising herself on her front feet; in so doing all the dirt and debris which has accumulated on her back slips off into the hole where the eggs lie covering them. Thus they are left to



A white Sea Turtle taken in Barataria Bay.

be hatched by nature. In about thirty or forty days little turtles begin to dig their way out of the mud or sand or fine shells and crawl into the water or back into the marsh if the eggs are lying on the slope of a ridge or hill. Little turtles will generally crawl back into the marsh; if the marsh is low and wet and the grass thick, they have more protection than anywhere else and better feeding. If the eggs are laid near a bank or close to shore, the small turtles have not much chance of escaping from their enemies. They are eaten up by the fish before they can get to a bayou or shallow lagoon where there is protection. However, these little turtles are strong and survive many hardships without maternal care.

After the eggs have been deposited, the female turtle goes back into the water and lolls and trudges along all summer until the first cool days of October, when she begins to bury herself for the winter months. The span of a turtle's life is equal to that of man.

ALLIGATOR SNAPPING TURTLE

This turtle, also known in Louisiana as the Fresh Water Loggerhead, is found in fresh water lakes, bayous and in muddy streams of this State. It is greater in size than the common species, sometimes reaching two feet or more in length and weighing 100 pounds. Its upper shell and head are of a yellowish muddy color with no plates under its tail. These turtles are very strong and vicious; they seldom come to the surface of the water for feeding, usually feeding under the water, and coming up only when absolutely necessary for air. Since the nostrils only are projected above the surface, this turtle is seldom seen even where abundant. The method of securing food and attacking their prey, is to lie motionless upon the bottom of the water. In this position it resembles a small mound of mud, and as the unsuspecting victims pass by, it darts upon them unawares. In captivity this species does not feed well unless provided with a secreted corner.

COMMON SNAPPING TURTLE

This species is partial to shallow water. Its habits and characteristics are somewhat similar to the Alligator Snapping Turtle. It is found throughout the bottomlands and fresh water marshes as well as in the bayous of this State. A large specimen weighs 40 to 50 pounds and the upper shell is about sixteen inches long. The back of the upper shell of this turtle is notched and the ridges broken, the height varying according to the age. The tail does not extend beyond the upper shell and is covered with a broad plate. It is quick and alert when attacking its prey, and being ravenous resorts to various methods of procuring its food. Like the Alligator Snapper it is very tricky, burying itself in the mud at the bottom of a stream, especially in lanes traversed by fish, upon which they dart ferociously. These turtles also crawl along edges of marshes and bayous in search of frogs and toads and seize upon them suddenly.

DIAMOND BACK TERRAPINS

This species is only found in salt and brackish waters. It is the peer of the species, and is a valued and highly recognized sea food delicacy, ranking first in importance among the species of turtles. This species deposits its eggs on the sandy shell beaches of the Gulf Coast and bays and lakes of that vicinity of this State.

They grow to a fair size, some large specimens sometimes having a shell nine inches long. They are beautifully colored when young. When full grown their upper shell is brown and olive with the lower shell yellow and gray. The head is brownish gray and black, and the jaws pink. Their upper shell contains a number of circular grooves and the pointed outlines in diamond shape

(*Continued on page 39*)

A Visit to Our Bird Islands

By E. S. HOPKINS

On June 27, 1931, Doctor F. R. Oasler, Vice President of the National Audubon Society, and Mr. Alden W. Hadley, assistant to the President of said Society and myself, set out on the good ship Pelican of the Department of Conservation, equipped for a ten-day trip to the Chandelier Islands; the object of this trip was to secure moving pictures and a check on the bird life found there.

We entered Lake Pontchartrain about ten thirty A. M. and arrived at Grand Pass about 5 P. M.

During the night quite a blow came up, which compelled us to remain at Grand Pass all day, the twenty-eighth. Our time was not wasted, as we secured many pictures of birds in that vicinity.

On June 29, we proceeded to North Island where I informed Doctor Oasler and Mr. Hadley I would show them a sight worth seeing, as this was a great nesting site for many birds and they would see thousands of the great Man O'War Bird.

I think both these gentlemen were a bit skeptical of my prediction. We arrived at North

Island about 11:00 A. M., and to say that these gentlemen were surprised at the bird life they beheld, is putting it mildly.

We found a large colony of Pelicans nesting, eggs and young, and Royal, Cabot, Caspian and Forster Terns besides a large colony of Herons.

We spent the afternoon and the following day making many feet of film depicting this bird life.

We then proceeded to the Chandelier Island which is a four-hour trip South of North Island or Curlew Island.

Thousands of the Tern Family, Laughing Gulls and Pelicans were nesting on a sand spit; in fact, we thought all the birds in that vicinity were on this island.

On account of an approaching storm we were forced to leave these birds and secure shelter behind Britian Island, which we did not make any too soon as the blow came upon us almost that instant.

The next morning we made some fine pictures of the Black Skimmer. That afternoon we returned to Erol Island where another large colony of birds were found—more pictures were secured. A few hours later we departed for Pilot Town arriving there at dark.

The next day we made a trip to the famous Mud Lumps near the mouth of the Mississippi River where we spent two days securing more pictures of our Emblematic Bird the Brown Pelican.

During 1930-31 birds were observed and specimens collected for the museum of the Conservation Department as listed below:

Horned Grebe—January, February, March and December, 1930, January, February and March, 1931. A very beneficial bird; destroys insects as proven by stomachs examined.

Pied-Billed Grebe—Quite common—three collected 1930-1931.

Loon—Common in winter—collected one in 1930.

Herring Gull—Common during winter months—November to April—collected three immature and two adults. These are the largest of our gulls.

Ringed-Billed Gull—Also a winter visitor — November to April, very common. Collected three.

Laughing Gulls—The largest of the black-headed varieties, found in Louisiana throughout the year.

Franklin Gulls—Never very common, but a few observed on Lake Pontchartrain in the winter months—these gulls like fresh water best.

Bonapartes Gulls—Another winter visitor, but never common; also a fresh water Gull.

Gull-Billed Tern—Quite a few observed at Grand Pass, West end of Marsh Island, in February, 1930, but only one on Grand Island in March, 1931. None collected.

Caspian Tern—Breeding, common along our coast. Collected both birds and eggs. They lay from two to three eggs.

Royal Tern—Very common; also a breeder, but lays only one egg. Both eggs and bird collected.

Cabot Tern—Very common; looks like the Caspian and Royal, but much smaller; has black bill with yellow tip, while the Caspian and Royal have red bills. Eggs and birds collected.

Forster Tern—This one is the most beautiful of our Terns. Very common; breeds on islands some distance from beach on grass that the waves have piled up. Three to four eggs are laid. Collected eggs and five birds.

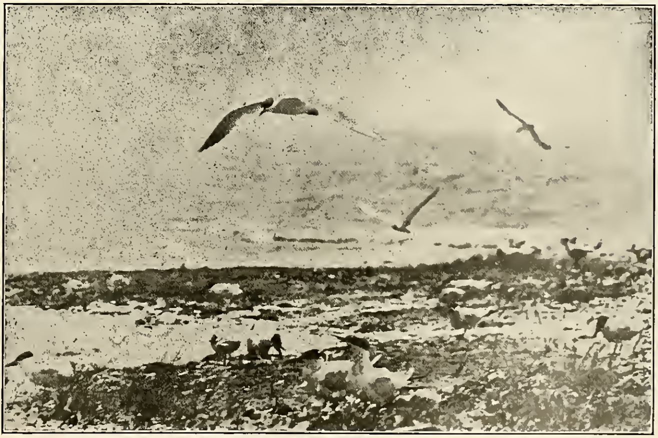
Common Tern—Very much like the Forster Tern but is found only during the winter months here. Collected three.

Least Tern—This small Tern is quite common again; at one time it was nearly exterminated when birds were worn on hats. They breed on islands near the Gulf. Collected three.

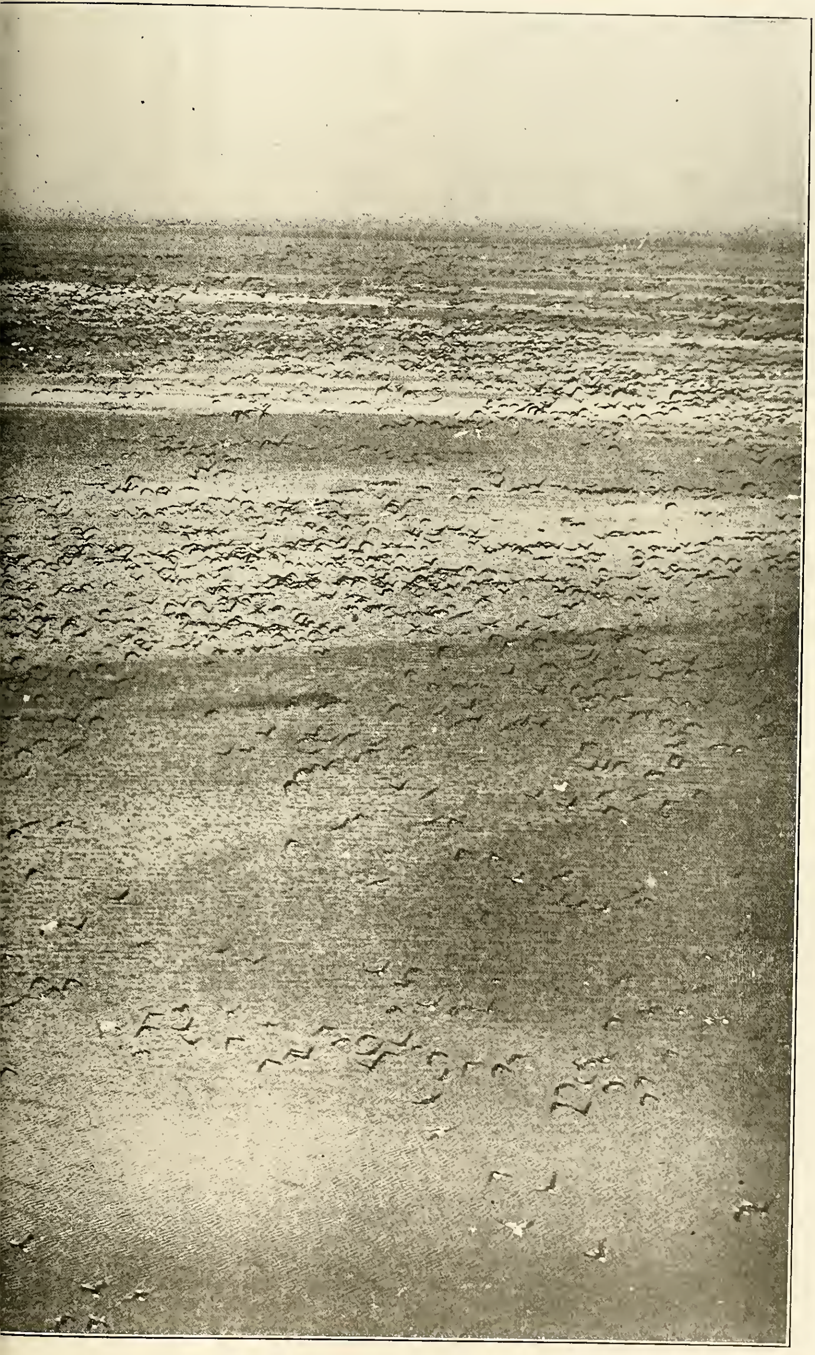
Sooty Tern—This has only been observed once by me, in July, 1931, on Curlew Island east of the Mississippi River—Curlew Island is one of the Chandeleur group.

Black Tern—Very common in winter; many non-breeders and immature birds remain with us through the summer; but no nests have ever been found. Collected four specimens.

Black Skimmer—This strange looking bird is very common on our coast where it is found breeding in great colonies. Three to four beautiful eggs are laid on the beach—the nest is just a small depression in the shells. Collected eggs and four birds.



ROYAL AND CABOT TERNS



MYRIADS of wild ducks wintering along the Louisiana Gulf Coast from the south side of Main Pass to the north side of Pass-a-la-Loutre, near the Delta Duck Club.

Airplane view taken on January 2, 1932 when Mr. Paul G. Redington, Chief of the United States Biological Survey, and Dr. T. Gilbert Pearson, president of the National Association of Audubon Societies, were accompanied by Mr. John Dymond, Jr., President of the Delta Duck Club, and Mr. Armand P. Daspit, Director of the Wild Life Division of the Department of Conservation, on an inspection tour of Louisiana's migratory wild life sanctuaries.

BLUE GOOSE

Anhinga or Snake Bird—Very common in our swamps. Collected one in 1930.

Cormorants—We have three species of Cormorants during the winter:

Double-Crested. *Florida.*

Mexican—Very common, a few nest in the interior of the State with Herons and Anhinga. Collected three.

White Pelican—This is the largest of birds found in Louisiana. Very common in winter, but very few seen in the summer, no nesting records reported. Three collected.

Brown Pelican—This is the emblematic bird of Louisiana. Needs little description. Very common along our coast. It has been honored many times by different firms using its name. One highway bears its name, also New Orleans base ball team.

In February and March of 1931, there was a severe epidemic among the Brown Pelicans, which reduced their number materially. But I found large numbers nesting on the mud lumps at the mouth of the Mississippi River and other islands along our coast. So there is no need to be alarmed about their becoming extinct. Collected three birds and quite a few eggs.

Man O'War Bird—This pirate of the sea is very common in summer. Quite a few to be seen at Grand Isle in the early spring, but in the months of May, June, July, and August, they are along our coast by the thousands. While they are expert fishermen, they prefer to rob the Terns of their catch during the nesting period. Doctor Oaster and Dr. Hadley, of the Audubon Society, who were with me, in July of 1931, at North Island on the east side of the Mississippi River, could hardly believe their eyes at the sight they beheld of these great Masters of the Air as they circled around overhead. This bird has been reported once to nest here but that is the only case.

American Merganser—This salt water duck is quite common around Grand Isle all winter. One collected.

Hooded Merganser—Found in our fresh water lakes and streams, this beautiful duck is quite common.

Mallard—(or French Duck, as it is called), is one of our common ducks and one that is very much sought after by hunters. Collected six.

Northern Black Mallard—While not a common duck quite a few are found at the mouth of the Mississippi River. Two collected.

Summer Mallard—This small black duck nests in our marshes very early; nests were found on Grand Isle early in March. On first of April, 1931, young were seen in the fresh water ponds on the Island.

Gadwell or Gray Duck—Common. Four collected at Morgan City.

Baldpate or Widgeon—Quite common. Four collected in the State.

Greenwinged Teal—This small duck is found all over the State. Quite a few collected.

Blue-Winged Teal—This is our earliest duck in the fall and the last to leave in the spring, is quite common around Grand Isle. Three collected.

Shoveller or Spoon-Bill—Is quite a beautiful duck in the spring just before he leaves for the North. This duck is very common at the mouth of the Mississippi River.

Pintail Duck—This one is very common. Collected four.

Wood Duck—This beautiful duck, while protected, is often killed in company with other ducks. Collected four.

They nest in our State along our fresh water streams. This duck is known by the native Louisianian as Branchu and by others as Squealer.

"This is the loveliest water fowl that the world can produce," (quoting the late Edward Howe Forbush—State Ornithologist of Massachusetts) even the celebrated Mandarin Duck of China pales in comparison with its regal beauty.

Redhead—Never very common, but a few are taken along with the Canvasback. Two collected.

Canvasback—This is the king of ducks, at times very common both at the mouth of the Mississippi and also in the Western part of the State.

American Scaup Duck—Better known as Bluebill or (Dos-gris). This is one of our most common ducks around fresh water lakes and rivers. Collected three.

Lesser Scaup Duck—Like the preceding specimens, but smaller. Very common. Collected five.

Ring-Necked Duck—Another common winter visitor known as Black Jack. A very fast flying duck and great diver. Collected six.

American Golden-Eye—Never very common, but a few are killed each season. Collected two females.

Buffle-Head—This small duck is known in Louisiana as Marionette or Butter-ball. In some sections quite common.

Old Squaw—This duck is quite rare. There are records of only five being taken in Louisiana 1899-1917-1921-1929 and 1930. There is one on exhibit in the State Museum and one in the Department exhibit at 237 Royal Street.

Ruddy-Duck—Quite common in the western part of the State. Collected three.

Lesser Snow Goose (or White Brant)—As it is sometimes called. The fact is we have no true Brant in Louisiana, but all found here are wild geese. This Lesser Snow is quite common. Found along with the Greater Snow and Blue Goose where they congregate in thousands in our marsh lands—during the winter months they feed on the roots of Three Square rush.

White-Fronted Goose—Other name Specklebelly—Quite common in the Western part of the State. One collected.

Canada Goose—Best known of all geese. Very common along our rivers and some of our lakes.

Fulvous Tree Duck—An irregular visitor to Louisiana, yet it cannot be called rare.

Roseate Spoonbill—This bird is very rare today. At one time common in Louisiana, but the plume hunters nearly wiped them all out before we had laws to protect them. There are a few left in the Western part of the State, where they breed each year.

Glossy Ibis—Quite common, as also the White Face Glossy and White Ibis. The French people call these birds (Bec-Croche) which means crooked bill. Two collected.

American Bittern—Quite common in winter. One collected.

Least Bittern—Common in summer. Found nesting along our Bayous. Collected three.

Great Blue Heron—Common the year around. Collected three.

American Egret—This is one of the most beautiful herons and is found the year around in Louisiana, more abundant in the summer where it breeds along with the Little Blue Heron and Snowy Egrets. Collected one.

Snowy Egret—This one at one time was very rare, but through enforcement of Conservation laws it is becoming very common again in Louisiana. One collected near Grand Isle.

Reddish Egret—This rare Heron is found in Louisiana in the summer. Collected my first on Grand Isle July 25, 1931.

Louisiana Heron—Very common. Collected six.

Little Blue Heron—Another common Heron in the summer, breeds over the whole State. The first year young are white and they make a beautiful picture in our cut-over rice fields in July and August with the old birds in blue plumage.

Green Heron (or Cap-Cap)—As it is sometimes called, is a beautiful heron and lends much beauty to our streams. They do not winter here but arrive in April from the South. We observe many on Grand Isle at that time of the year. Collected seven.

Black-Crowned Night Heron—(better known as Gros-bec—means big bill). Very common along our islands on the coast, both winter and summer, where it breeds. Collected one.

Yellow-Crowned Night Heron—This bird returns to Louisiana in the spring to nest. Collected two on Grand Isle in April, 1931.

Rail—Very common bird in Louisiana marshes in the winter, the King, Sora, Yellow Virginia and Louisiana Clapper. The latter nest in all our marshes and as fine a bird for the table as any one could wish for. The nest is made of grass on the ground. In fact, all the nests I have ever found were quite damp, but yet they seem to have little trouble in hatching out their young—from ten to fifteen—they are coal black when hatched.

Gallinules—We have both the Purple and Florida. The latter remains the year around; but the Purple, a beautiful bird, arrives in April from South America and I fear many are lost in making this trip. They are often picked up by boats out in the Gulf, and I have found them in the waters on the coast of Grand Isle with just a spark of life left in them; of course, this only happens while they have a heavy North West wind to fight. They both nest in Louisiana.

Coot—(*Or Poule d'eau*) as it is called in Louisiana. A very common bird in the winter and many are killed by hunters.

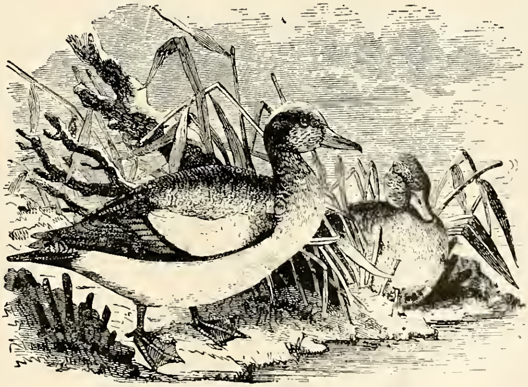
Black-Necked Stilt—This bird is quite common in the Western part of the State where it breeds. Observed quite a flock in Jefferson Parish in April, 1931.

Woodcock—This prince of game birds is quite common in some parts of Louisiana, being an early nester. Many are killed by hunters hunting quail. The law allows only four a day and the season is from December 1, to January 1, but many are killed later by mistake, or by hunters who do not care to observe the law.

Wilson Snipe—(Or Jack Snipe) is very common from early fall to late spring and affords great sport, but the Nimrod must have a good eye and be a good shot to get his limit in a day's hunt.

Dowitcher—Louisiana has both the Long-Bill and Short-Bill. This bird is called Dormeur (a French name meaning Sleeper), quite common along our coast. Many observed on Grand Isle.

(*Continued on page 38*)



GADWALL

Louisiana Nature Guardians

"Upon my honor, as a Louisiana Nature Guardian, I promise to take care of all our natural friends, to guard and protect them to the best of my ability, and as far as possible influence others to do the same."

ESTELLE VERGIE COTTMAN, *Editor*

WHEN the Nature Guardian Club of Louisiana was formed several years ago, it met an instant and hearty response from the teachers and the school children all over the State. From a small interested group it has grown steadily into a mighty force of thousands of young conservationists. These children are the proud possessors of handsome lithographed badges, and certificates of membership. New Clubs are being formed each week and it is the purpose of the Educational Bureau to enroll every Louisiana boy and girl, white or colored, under the Nature Guardian banner.

HOW YOU CAN BECOME A NATURE GUARDIAN

YOUR PART

Consult your teacher.

Ask that the purpose and plans of the Nature Guardian Club be explained to you and the class.

Ask for an application card.

Get a responsible person to indorse it, after proving that you fully understand the duties of a Nature Guardian.

Sign the application and mail the card, or give to your teacher, to send with cards from all the class.

OUR PART

We send the application card.

We send you a handsome badge, a certificate of membership, Nature Guardian pamphlets and other literature.

This is all free, and is carried on with the purpose of instilling into the children's minds a knowledge of Louisiana's wild life and a thorough understanding of its economic value to the State.

It also aims to develop individual humanitarianism. Even within this short time an amazing improvement has been made in the mental attitude of our young folks toward the conservation and protection of Louisiana's natural resources.

MY DEAR GUARDIANS:

Do you know that some scientist has estimated that if all the birds were destroyed, it would only be about seven years before all human and animal life in the world would die of starvation?

Not a blade of grass would be left; not a vegetable, not a tree, not a grain of cereal, not a flower.

The land would be a barren waste, buffeted by wind and rain, and parched by the fierce rays of the sun. It is thought that insects would be the last living things.

Is it not wonderful that such weak, harmless creatures as the birds prevent this catastrophe? They alone stand between mankind and such a tragedy.

In spite of their great economic usefulness, many people kill birds or permit them to be killed in overwhelming numbers. Each Guardian should do all in his power to protect them at all times, and to influence others to do the same. In doing so he will live up to his oath of allegiance, and will help to protect and care for man's best friends—the birds.

Let us have some letters telling your ideas about this great problem.

With love to each Guardian,
Cordially yours,
THE EDITOR.

Colfax, La.
Route 3.

Department of Conservation,
New Court House Bldg.,
New Orleans, La.

DEAR EDITOR:

I am a little girl, age 9 years, and would like to become a member of your Club. Please enroll me as a member and please send me an application blank as soon as possible.

Very truly yours,
(Signed) LOU LEONE SMITH,
Route No. 3, Colfax, La.

We have sent the application card, and by the time this is printed Leone should be a full fledged member!

Opelousas, La.,
Feb. 5, 1932.

DEAR EDITOR:

I thank you for the books and papers that you sent me, especially the "Wild Life Day Programs." The papers were very interesting and the books had nice stories about birds and wild animals.

In the "Tree Primer" and in the "Bird Primer" there were lovely poems and stories about trees and birds.

Very truly yours,
HERAM G. PERRODIN.

Thank you, Herman, for your appreciation. It is always pleasant to know we have interested the Guardians.

Donaldsonville, La.

DEAR EDITOR:

I guess you think I'm acting queer asking you for three or four application blanks at a time. But ever since I brought some of by booklets to school every one has wanted to join. I had told them about it before and had shown them my pin, but not until they saw the booklets did they really become interested. So will you please send me four more.

I have a dog named Woo-Woo. He is part German police and part Bulldog. When he stands up his front feet touch my chin. He is almost grown but is as playful as a puppy. He likes to go on long walks through the rice fields or woods. Sometimes we play tug-a-war. I get a strong stick and hold it high as I can, he jumps and gets it, then pulls. Sometimes he pulls it away from me. I never give him a piece of meat or bread without making him jump.

He isn't the only one who enjoys those walks, cause I am sure he couldn't like them more than I do. I see all kinds of birds. One time I saw some rabbit tracks and one time some cat tracks. I don't know how the cat got way back there but there were his tracks. Another time I saw some buzzards eat something dead. I couldn't see what it was because I was too far away. They surely have a peculiar idea of what to eat.

Yours truly,
(Signed) MARY E. MARCHAND,
Donaldsonville, La.

This is an interesting letter! Mary is and old friend, and we are always glad to have her write to us.

ORIGIN OF THE BIRDS

A long time ago the Indians said that God once touched our earth and in every spot a tree grew up with leaves and flowers. But when Autumn came, the pretty green leaves changed to gold and red. Soon they fell to the ground, they tell us. God was unwilling to see them die so he changed every leaf into a bird. The birds began to sing and the sweetest music from all the trees rang out. God made Robins from the red and brown oak trees. The yellow birds from the yellow willow trees, and once each Cardinal was a maple-red. The larks and sparrows were once dead leaves. That's the beginning of the birds. That is why the birds stay in trees, because they were once leaves.

7296 Lyndover,
Maplewood, Mo.

DEAR EDITOR:

I am very much interested in your Nature Guardian Club, and I would like very much to join. I am studying studying Biology in school and now we are taking up conservation. I have been receiving your "Conservation Review" for a year and I feel that I understand fully your purpose and work.

Your "Review" has helped me in more ways than one. It has given me topics for themes, etc. for English, and has made Biology a much more likeable subject. I do not know if many outsiders have joined, but if anyone may, I would appreciate very much if you would send me an application card, and all the other things, so that I may become a member of your most excellent Club.

Yours Sincerely,
AUDREY C. HICKS,
(Aged 14.)

We have sent Audry the application card, and shall make her an honorary member, for only the children of our State can become regular members. Many teachers and camp leaders are such members, and we are proud to enroll them.

OUR WONDERFUL WORLD

This world is indeed a wonderful place,
With its trees and its beautiful flowers,
With Spanish moss hanging like lovely gray lace,
Where the mocking birds gladden the bowers.

The shy little creatures that people the world,
The meadow larks searching for grain,
The great bumblebees with their riches untold,
The sunset that smiles through the rain.

All these add a charm to this old world of ours,
Father Time with his years can't dispel,
For God, in His love, has created a world
Whose beauty no mere words can tell.

—M. G. S.

We welcome the many new members that have joined the Club recently. Come in, and make yourselves at home. As the old saying has it, "There is 'Welcome' on the door mat."

We shall be glad to hear from our members at any time, and shall be glad to print their poems, themes, and letters about any of the natural resources of Louisiana. We hope that our next issue will contain many interesting articles by members of our club.

Address all letters to:
NATURE GUARDIAN EDITOR,
DEPARTMENT OF CONSERVATION
New Court Building, N. O.

Brandao Printing Company
HIGH GRADE COMMERCIAL
PRINTING
524 NATCHEZ STREET
PROMPT DELIVERY CAREFUL SUPERVISION
TELEPHONE RAYMOND 3751 NEW ORLEANS, LA.

Some Publications Dealing with the Oil and Gas Fields of Louisiana

By CLARENCE P. DUNBAR
Paleontologist, Department of Conservation, Minerals Division

THE preparation of a condensed bibliography relating to the oil and gas fields of the State of Louisiana and adjoining areas is a considerable task, as there are to date, probably, one thousand or more papers published dealing partially or exclusively with the geology and mineral resources of the area.

Publications of the United States Geological Survey, American Association of Petroleum Geologists, United States Bureau of Mines, Louisiana Geological Survey, Oil Weekly, Louisiana Department of Conservation, Oil and Gas Journal, Pan American Geologist, American Institute of Mining and Metallurgical Engineers, and numerous other serials contain valuable information concerning the oil and gas fields of Louisiana.

A large number of these references were taken from the "Bibliography of North American Geology," from 1785-1930, which are contained in the Bulletins of the United States Geological Survey, Numbers 746, 747, 823, and 834.

ADAMS, G. I.—[1] Oil and Gas fields of the Upper Cretaceous and Tertiary formations of the Western Gulf Coast: U. S. G. S., Bull., 184, map, 1901.

ALBERTSON, MAURICE MERTON—[1] Possible explanation of the large initial production of some wells of the Haynesville field, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 7, No. 3, pp. 295-296, May-June, 1923.

AMES, E. R.—[1] South Louisiana domes reviewed: Oil and Gas Journal, Vol. 28, No. 45, p. 42, pp. 159-160, March 27, 1930.

BARTON, DONALD CLINTON—[1] Pine Prairie salt dome, Evangeline Parish, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 9, No. 4, pp. 738-755, 5 figs., July, 1925; Geology of salt dome oil fields, pp. 419-436, 5 figs., 1926. [2] The American salt-dome problems in the light of the Rumanian and German salt domes: Am. Assoc. Pet. Geol., Bull., Vol. 9, No. 9, pp. 1227-1268, 13 figs., 2 pls., December, 1925; Geology of salt dome oil fields, pp. 167-208, 13 figs., 2 pls., 1926. [3] (and Goodrich, R. H.) The Jennings oil field, Acadia Parish, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 10, No. 1, pp. 72-92, 6 figs., 1 pl., January, 1926; Geology of salt dome oil fields, pp. 398-418, 6 figs., 1 pl., 1926. [4] The Gulf Coast oil fields of Southeast Texas and Southwest Louisiana: Internationale Bergwirtschaft, Jg. 1, H. 9-10, pp. 244-253, 2 figs., June-July, 1926. [5] Petroleum potentialities of Gulf Coast petroleum province of Texas and Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 14, No. 11, pp. 1379-1400, 3 figs., November, 1930; abstract, Pan. Am. Geologist, Vol. 53, No. 3, pp. 230-232, April, 1932.

BATES, MOWRY—[1] The oil and gas fields of Northern Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 2, No. 1, pp. 61-69, 1918. [2] A concrete example of the use of well logs, Red River-Crichton oil field, Louisiana: Am. Inst. Min. and Met, Eng., Trans., Vol. 61, pp. 590-597, 3 figs., 1920.

BAUERNSCHMIDT, A. J., JR.—[1] Sulphur dome, Calcasieu Parish, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 14, No. 8, pp. 1079-1086, August, 1930.

BELL, HARRY WESLEY—[1] (and Cattell, R. A.) The Monroe gas fields, Ouachita, Morehouse, and Union Parishes, Louisiana: Louisiana, Department of Conservation, Bull., No. 9, pp. 99, 17 figs., 9 pls., maps, July, 1921.

BELCHIE AND BREITUNG—[1] Gas production from the Spring Hill-Sarepta gas field: Am. Assoc. Pet. Geol., Bull., Vol. 7, No. 5, pp. 555-557, 1923.

CHAUTARD, Jean—[1] L'origine des mounds petroloferes du Texas et de la Louisiane: Ac. Sc., Paris, Compte Rendu, 160, pp. 69-72, 1915.

CHISHOLM, W. F.—[1] Report of the Division of Minerals, Department of Conservation, State of Louisiana, 1926-1928, pp. 77, 1929.

CLAPP, F. G.—[1] Salt domes of Texas and Louisiana Gulf Coast: J. of the Instit. of Pet. Tech., Vol. 17, No. 91, pp. 281-299, May, 1931. [2] Salt domes of the Gulf Coast: Int. Pet. Tech., Vol. 8, No. 8, pp. 339-348, July, 1931 .

CRIDER, ALBERT FOSTER—[1] Deep Pine Island gas, Northern Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 9, No. 1, pp. 171-172, January-February, 1925. [2] Pine Island deep sands, Caddo Parish, Louisiana: Structure of typical American oil fields, Vol. 2, pp. 168-182, 5 figs., Am. Assoc. Pet. Geol., 1929.

DeGOLYER, E.—[1] Origin of North American salt domes: Am. Assoc. Pet. Geol., Bull., Vol. 9, No. 5, pp. 831-874, 1925; Geology of salt dome oil fields, pp. 1-44, 1926.

DEUSSEN, A.—[1] Salt domes of Texas and Louisiana: Oil Weekly, Vol. 24, No. 4, pp. 11, 16, 18, January 21, 1922. [2] Development of Gulf Coast fields: Oil and Gas Journal, pp. 100-103, 112, March 1, 1923.

DONOGHUE, DAVID—[1] The Bayou Bouillon dome, St. Martin, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 9, No. 9, pp. 1283-1289, 1 fig., December, 1925; Geology of salt dome oil fields, pp. 345-351, 1 fig., 1926. [2] Section 28 salt dome, St. Martin Parish, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 9, No. 9, pp. 1290-1293, 1 fig., December, 1925; Geology of salt dome oil fields, pp. 352-355, 1 fig., 1926.

EMMONS, W. H.—[1] Geology of Petroleum: Second edition, McGraw Hill, 1931.

FENNEMAN, N. M.—[1] Oil fields of the Texas-Louisiana Gulf Coast: U. S. G. S., Bull. 260, pp. 101, maps, 1905. [2] Oil fields of the Texas-Louisiana Coastal Plain: M. Mag., Vol. 11, pp. 313-322, 1905. [3] Oil fields of the Texas-Louisiana Gulf Coastal Plain: U. S. G. S., Bull. 282, pp. 146, 1906.

FISHBACK, P. J.—[1] Geological horizon of the petroleum in Southeast Texas and Southwest Louisiana: Eng. Min. Jour., Vol. 74, p. 476, 1902.

FLETCHER, DORBIN D.—[1] Structure of Caddo field, Caddo Parish, Louisiana: Structure of typical American oil fields, vol. 2, pp. 183-195, 3 figs., Am. Assoc. Pet. Geol., 1929.

GORDON, DUGALD—[1] Richland gas field, Richland Parish, Louisiana: Bull., Am. Assoc. Pet. Geol., Vol. 15, No. 8, August, 1931.

GRIMM, M. W.—[1] (and Howe, H. V.) New Waskom gas field of Louisiana and Texas: Pan-Am. Geologist, Vol. 43, No. 5, pp. 333-335, 1 pl., map, June, 1925.

HARRIS, GILBERT DENNISON—[1] Oil in Louisiana: Louisiana State Ex. Sta., Geol. Agr. La., pt. 6, pp. 261-275, 1902. [2] (and Perrine, I. and Hooper, W. E.) Oil and gas in Northwestern Louisiana with special reference to the Caddo field: La. Geol. Survey, Bull. No. 8, 1909. [3] Oil and gas in Louisiana: U. S. G. S. Bull. 429, pp. 192, 1910.

HAYS, C. W.—[1] (and Kennedy, W.) Oil fields of the Texas-Louisiana Gulf Coastal Plain: U. S. G. S., Bull. 212, pp. 174, maps, 1903. [2] Oil fields of the Texas-Louisiana Gulf Coastal Plain: U. S. G. S., Bull. 213, pp. 345-352, 1903.

HOPPER, WALTER E.—[1] The Caddo oil and gas field, Louisiana: Am. I. Min. Eng., Bull. 52, pp. 283-309, 1911; Tr. 42, pp. 409-435, 1912.

HOWE, HENRY V.—[1] (and Moresi, C. K.) Geology of Iberia Parish: Dept. of Conservation, State of Louisiana, Bureau of Scientific Research, Geological Bull. No. 1, pp. 187, pls., maps, 1931.

HULL, JOSEPH POYER DEYO—[1] The Haynesville pool, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 5, No. 5, pp. 629-633, September-October, 1921. [2], and Spooner, W. C.) A review of the oil and gas pools in North Louisiana territory: Am. Assoc. Pet. Geol., Bull., Vol. 6, No. 3, pp. 179-192, 259, May-June, 1922. [3] The Bellevue oil pool, Louisiana: Am. Assoc. Pet. Geol., Bull. Vol. 6, No. 3, pp. 247-250, May-June, 1922. [4] Webster Parish gas fields, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 6, No. 3, pp. 251-252, May-June, 1922. [5] Notes of the stratigraphy of producing sands in Northern Louisiana and Southern Arkansas (with discussion): Am. Assoc. pet. Geol. Bull., Vol. 7, No. 4, pp. 362-369. July-August, 1923. [6] Protho salt dome, Bienville Parish, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 9, No. 5, pp. 904-906, August, 1925.

HUNTLEY, LOUIS GROW—[1] The Sabine uplift, Arkansas-Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 7, No. 2, pp. 179-181, 2 figs., March-April, 1923.

IRION, V. K.—[1] A brief survey of the natural resources of Louisiana: La. Dept. of Conservation, Bull. 13, pp. 48, January, 1926; reissued June, 1926.

KELLEY, P. K.—[1] The sulphur salt dome, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 9, No. 3, pp. 479-496, 7 figs., 1 pl., May-June, 1925; Geology of salt dome oil fields, pp. 452-469, 7 figs., 1 pl., 1926.

KENNEDY, WILLIAM—[1] (with Haynes, C. W.) Oil fields of Texas-Louisiana Gulf Coastal Plain: U. S. G. S., Bull. 212, pp. 174, maps, 1903.

LOGAN, JACK—[1] Gulf Coast has a record year of settled output: Oil Weekly, Vol. 52, No. 10, pp. 60-62, February, 1929. [2] Sabine uplift important in petroleum development: The Oil Weekly, Vol. 62, No. 9, pp. 17-20, August 14, 1931.

LUCAS, A. F.—[1] Geology of sulphur and sulphur oil deposits of the Coastal Plain: J. Ind. Eng. Chem., vol. 4, pp. 140-143, 1912.

MATSON, GEORGE CHARLTON—[1] The Caddo oil and gas field, Louisiana and Texas: U. S. G. S., Bull. 619, pp. 62. map, 1916. [2] The DeSoto-Red River oil and gas field, Louisiana: U. S. G. S., Bull. 661, pp. 211-252, maps, 1917; abstract by R. W. Stone, Wash. Ac. Science, Journal 8, pp. 36-37, 1918.

McDONALD, WORTH W.—[1] The Cotton Valley, Louisiana, oil field: Am. Assoc. Pet. Geol., Bull., Vol. 9, No. 5, pp. 875-885, 7 fig., August, 1925.

MINOR, H. E.—[1] The Edgerly oil field, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 9, No. 3, pp. 497-504, 4 figs., May-June, 1925; Geology of salt dome oil fields, pp. 470-477, 4 figs., 1926.

MOODY, C. L.—[1] Tertiary history of the region of the Sabine Uplift, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 15, pp. 531-551, May, 1931.

PONTON, GERALD M.—[1] (and Whitehurst, John W.) The Spring Hill-Sarepta gas field, Webster and Bossier Parishes, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 7, No. 5, pp. 546-554, 1 fig., September-October, 1923.

POWERS, SIDNEY—[1] The Sabine Uplift, Louisiana: Am. Assoc. Pet. Geol., Bull. Vol. 4, No. 2, pp. 117-136, 2 figs., 1920. [2] Cotton Valley oil and gas fields, Webster Parish, Louisiana: Am. Assoc. Pet. Geol., Vol. 8, No. 2, pp. 244-246, 1 fig., March-April, 1924. [3] Interior salt domes of Texas: Am. Assoc. Pet. Geol., Bull., Vol. 10, No. 1, pp. 1-60, January, 1926; Geology of salt dome oil fields, pp. 209-268, 1926.

REED, LYMAN C.—[1] The Welsh, Louisiana, oil field: Am. Assoc. Pet. Geol., Bull., Vol. 9, No. 3, pp. 464-478, 6 figs., May-June, 1925; Geology of salt dome oil fields, pp. 437-451, 6 figs., 1926.

RICHARDSON, G. B.—[1] (Map of the) Oil and gas fields of the State of Louisiana: Scale 1 in. equals 12 miles, U. S. Geol. Survey, 1921.

ROSS, J. S.—[1] Deep sand development in Cotton Valley field, Webster Parish, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 14, No. 8, pp. 983-995, 4 figs., August, 1930. [2] Engineering report of the Cotton Valley field, Webster Parish, Louisiana: Bureau of Mines, Technical Paper 504, pp. 69, figs., maps, 1931.

SCOTT, WALTER W.—[1] (and Stroud, B. K.) The Haynesville oil field, Caliborne Parish, Louisiana: Louisiana, Department of Conservation, Bull. No. 11, pp. 26, map, January, 1922. [2] Preliminary report on underground conditions in the Haynesville oil field, Louisiana: Am. Assoc. Pet. Geol., Vol. 6, No. 2, p. 142, March-April, 1922.

SHAW, DR. J. A.—[1] Ninth Biennial report of the Department of Conservation, Division of Minerals, State of Louisiana, 1928-1929, pp. 140-178, 1930. [2] Tenth Biennial report of the Department of Conservation, Division of Minerals, State of Louisiana, 1930-1931, pp. 390-485, April, 1932.

SHEARER, H. K.—[1] (and Hutson, E. B.) Dixie oil pool, Caddo Parish, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 14, No. 6, pp. 743-763, 4 figs., June 1930; abstract, Pan-Am. Geologist, Vol. 53, No. 3, pp. 216, 217, April, 1930.

SPOONER, W. C.—[1] The Monroe gas field; geology: Louisiana, Department of Conservation, Bull. No. 12, pp. 4-6, 1 pl., 1926. [2] Interior salt domes of Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 10, No. 3, pp. 217-292, 25 figs., 1 pl., March, 1926; Geology of salt dome oil fields, pp. 269-344, 25 figs., 1 pl., 1926. [3] Production in East Carroll Parish, Louisiana: Am. Assoc. Pet. Geol., Bul., Vol. 12, No. 7, p. 765, July, 1928. [4] Homer oil field, Caliborne Parish, Louisiana: Structure of typical American oil fields, Vol. 1, pp. 196-228, 11 figs., Am. Assoc. Pet Geol., 1929.

STROUD, BENJAMIN KENDRICK—[1] The Monroe gas field, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 7, No. 5, pp. 565-574, September-October, 1923.

TEAS, LIVINGTON PIERSON—[1] Haynesville field, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 6, No. 1, pp. 53-54, January-February, 1922. [2] The Haynesville, Louisiana, oil field: Am. Assoc. Pet. Geol., Bull., Vol. 6, No. 4, pp. 371-372, July-August, 1922. [3] Bellevue oil field, Bossier Parish, Louisiana: Structure of typical American oil fields, Vol. 1, pp. 229-253, 4 figs., Am. Assoc. Pet. Geol., 1929.

THOMPSON, S. A.—[1] (and Eichelberger, O. H.) Vinton salt dome, Calcasieu Parish, Louisiana: Am. Assoc. Pet. Geol., Bull., Vol. 12, No. 4, pp. 385-394, 2 figs., 2 pls., April, 1928.

UNITED STATES GEOLOGICAL SURVEY—[1] (Map showing) oil and gas fields of the State of Louisiana, Scale: 1 equals 12 miles, 1921.

VAUGHAN, F. E.—[1] The five islands of Louisiana: Am. Assoc. Pet. Geol., Bull, Vol. 9, No. 4, pp. 756-797, July 1925; Geology salt dome oil fields, pp. 356-397, 1926.

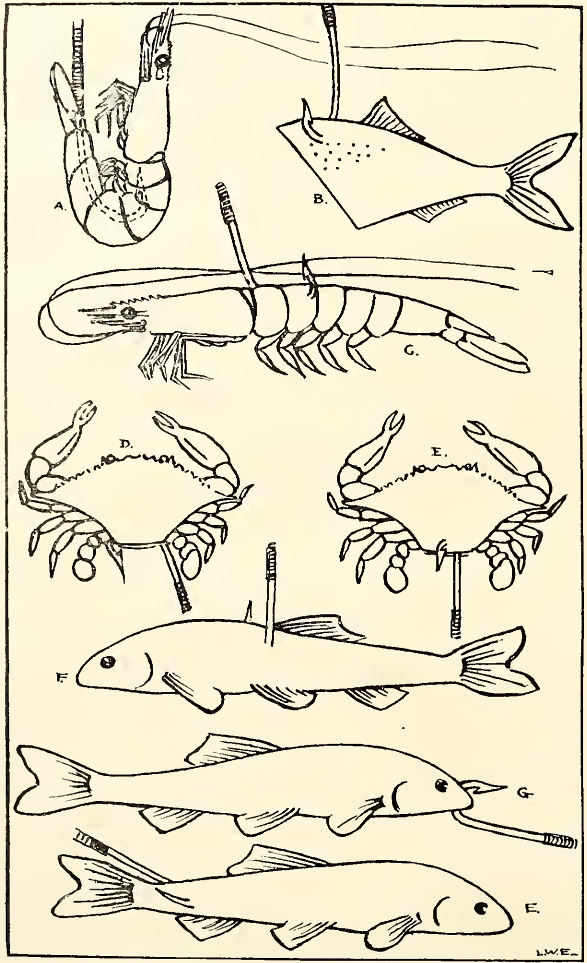
VER WIEBE, W. A.—[1] Oil fields of the United States: McGraw-Hill, 1930.

WOOTEN, PAUL—[1] History and development of Louisiana's oil fields: M. World, Vol. 36, pp. 1296-1298, 401-402, 1912.

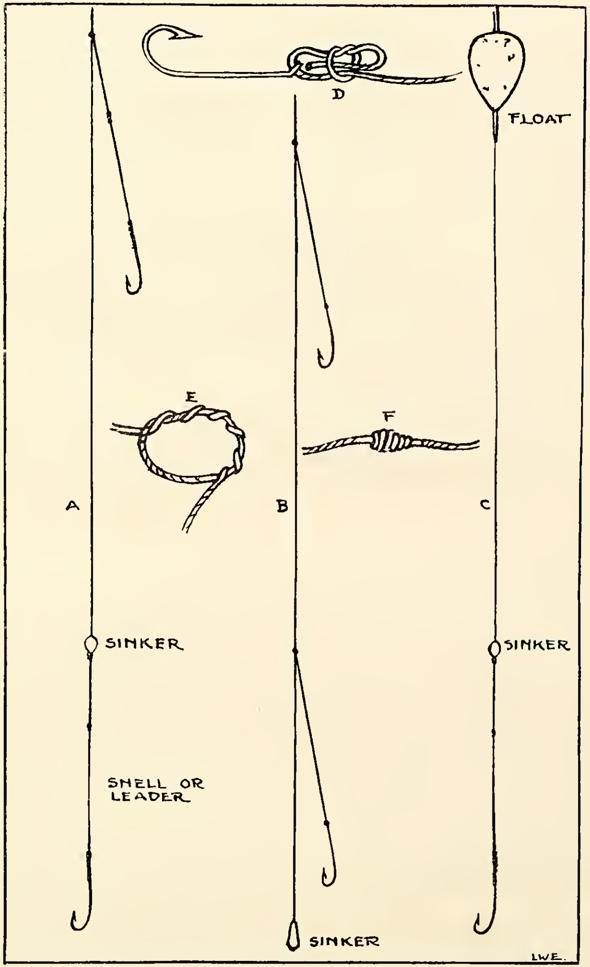
Bankers Know Value of Soil-Erosion Control

The value of controlling run-off water to prevent soil wash on rolling cultivated lands is recognized by financial interests engaged in loaning money on farmlands, reports the United States Department of Agriculture. Two Federal farm loan banks require that all rolling land upon which they make loans be terraced. One of them employs an engineer to check over farms on which it has loans, to see that all terraces are properly built and maintained.

During the last year three large insurance companies have employed engineers to direct the work of controlling erosion on farms that these companies have taken over, which not only indicates a realization of the benefits of controlling run-off water but also suggests that it may be difficult to obtain long-time loans on farms where no effort is made to prevent soil washing away.



Some approved methods of attaching baits to hooks; shrimp, cut fish, small crabs and minnows.



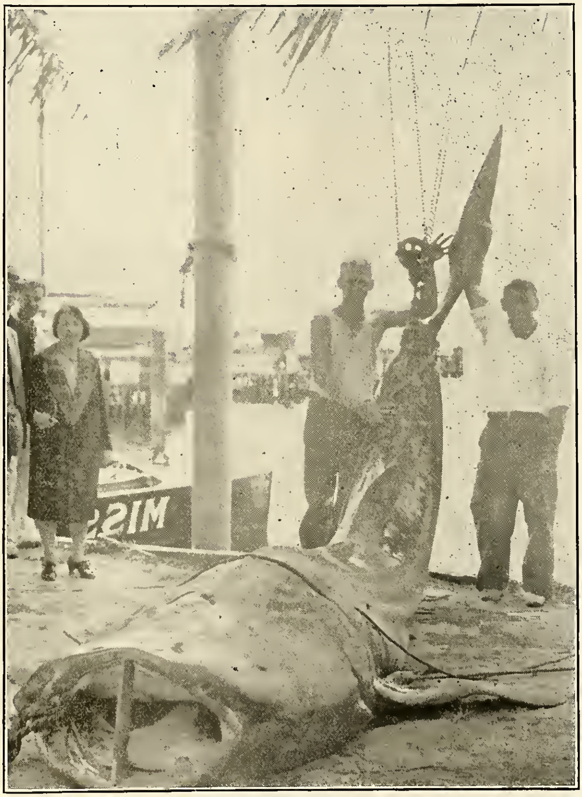
"A", "B", and "C" show various methods of rigging a line. "D" is a useful knot by which the line is attached to the hook or leader. "E" and "F" are two stages in the tying of a bulky knot to keep an "egg" sinker from slipping down.

Department to Issue New Fish Bulletin

A NEW BULLETIN "Fishes and Fishing in Louisiana" will be published by the Department of Conservation during July. This publication will replace the earlier Bulletin No. 21, of the Department of Conservation, "Sea Fishes and Sea Fishing in Louisiana," the edition of which has now been completely exhausted.

Prepared by James Nelson Gowanloch, Chief Biologist of the Bureau of Research, Department of Conservation, "Fishes and Fishing in Louisiana," will be a work of about twice the size of the earlier Fish Bulletin, and in addition to the sea fish materials will cover the subject of fresh water fishes. The new bulletin will be divided into four parts and will be fully illustrated.

Part One will give a general account of the life and structure of fishes together with descriptions of various angling methods from still fishing for Speckled Trout to surf casting for Tarpon. There will be included a valuable chapter on fishing tackle and related subjects by Colonel Hu B. Myers, in which knowledge gained from a long and alert experience in sport fishing will be set down. Various methods of rig of gear and the most successful ways of using all the various baits will be fully described and illustrated.



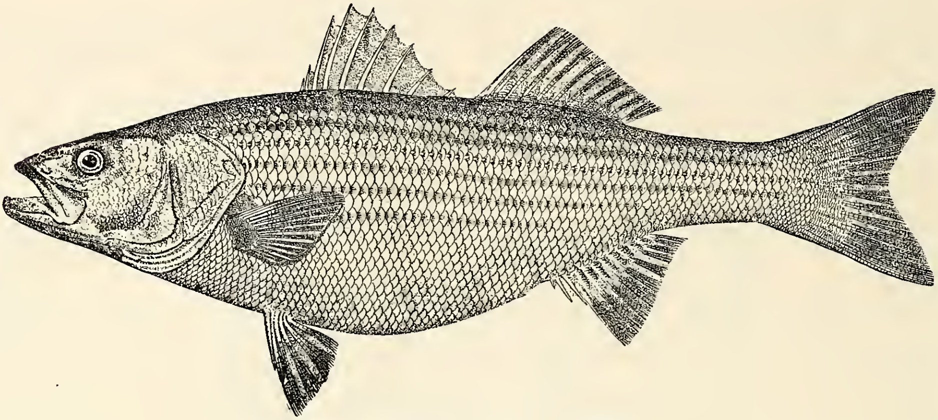
THE WHALE SHARK
Rhineodon typicus

One of the least known and at the same time one of the largest fishes in the world, the Whale Shark has been taken in the Gulf of Mexico. The above photograph is the first scientifically valuable illustration of a specimen of this Shark yet secured and shows very clearly the remarkably large mouth this species possesses. The one illustrated was only 18 feet long. A 23-foot Whale Shark has been found to possess teeth only 1/12 of an inch in length. A thirty-eight-foot individual, weighing 26,594 pounds, has been captured.

Part Two of the new bulletin will give an extensive account of Louisiana Sea Fishes in which will be illustrated all of our important food and game species, together with a wide selection of those other marine varieties which for one reason or another, strange habits or extraordinary form, attract the attention of the angler. Here will be found the first scientifically valuable photographs ever taken of one of the world's largest fishes.

Part Three will give an account, fully illustrated, of Louisiana's important fresh water food and game fishes, together with a description of special angling methods found to bring best results. A very complete description will be given of the best methods for rearing fishes in ponds. Construction of the ponds, choice of species, feeding of the brood stock, and the care of the young fishes are all given in detail. Methods of raising Black Bass, Crappies, Sunfish and Buffalo Fish are all included.

Part Four of the new bulletin will contain an enlarged manual of the cookery of sea foods. Hundreds of recipes for preparing fish dishes, shrimp dishes, and oyster dishes have been gathered together, including some rare old Creole secrets.



THE STRIPED BASS OR ROCK FISH
Roccus saxatilis

This splendid fish is a sea species which runs up rivers to spawn and has been reported from the Tchefuncta and other Louisiana streams in schools of 100 fish or more. They have been taken successfully on artificial lures such as a white plug with a red head. The Rock Fish has been known to reach a weight of 125 pounds and provides excellent sport. Striped Bass appear to feed chiefly on fishes and large crustacea, including both crabs and lobsters.

The eggs set adrift in the sea measure at spawning only 7/50 of an inch in diameter. As many as 2,200,000 have been found in a single female. As early as 48 hours after spawning, the eggs hatch into active Rock Fish larvae.

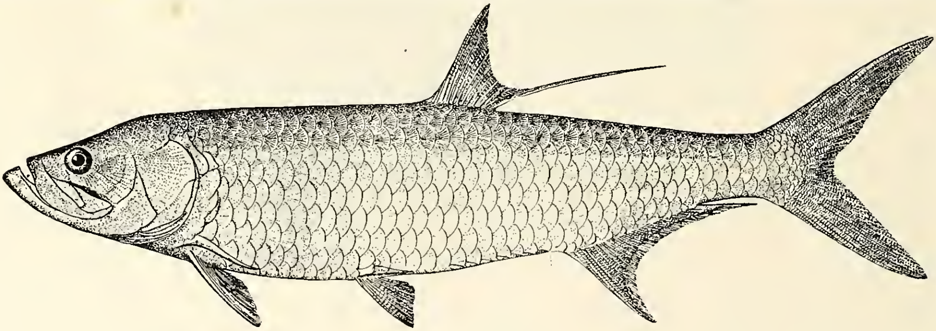
Introduced into California waters, the Rock Fish has provided the most remarkable example in all history of the acclimation of a new species. From only 435 Striped Bass yearlings planted, there has now developed a fishery that has yielded as high as 1,700,000 pounds in a single year.

Movements of the Striped Bass in Louisiana waters are still far from clear. The Striped Bass is a member of the White Bass family (Family *Moronidae*), a group of fishes closely related to the true Sea Basses (Family *Serranidae*).

An especially attractive feature of the new bulletin will be the inclusion of a series of remarkable fishing pictures taken by that expert Tarpon fisherman, Mr. Henry E. Belden, of New Orleans. Mr. Belden has, better than anyone else of whom we have knowledge, succeeded in recording the spectacular leaps of the fighting Tarpon.

A further feature of the publication will be a presentation of many "keys" by the use of which the angler will be able to identify his catches. A key to all of the families of fresh water fishes is also given together with numerous other keys for the separation of species of certain important families. The keys are all written in an entirely new form which permits their satisfactory use by the amateur.

"Fishes and Fishing in Louisiana" is an attempt to place within one volume a mass of

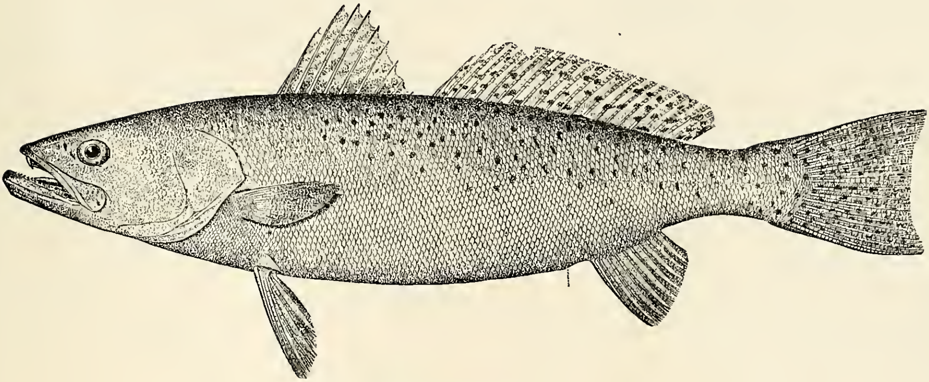


THE TARPON
Tarpon atlanticus

This huge member of the Herring-like fishes is one of the world's premier game species and calls forth the utmost resources of the angler who strives to capture him. Louisiana offers to the fisherman the finest possible Tarpon fishing. In a single afternoon one sportsman at Grand Isle in five hours hooked and landed five Tarpon, each over six feet long.

A very full account of the Tarpon, its life history and the methods of its capture will be found in the "Fishes and Fishing in Louisiana," accompanied by extraordinarily fine photographs of fighting Tarpon taken by Mr. Henry E. Belden of New Orleans.

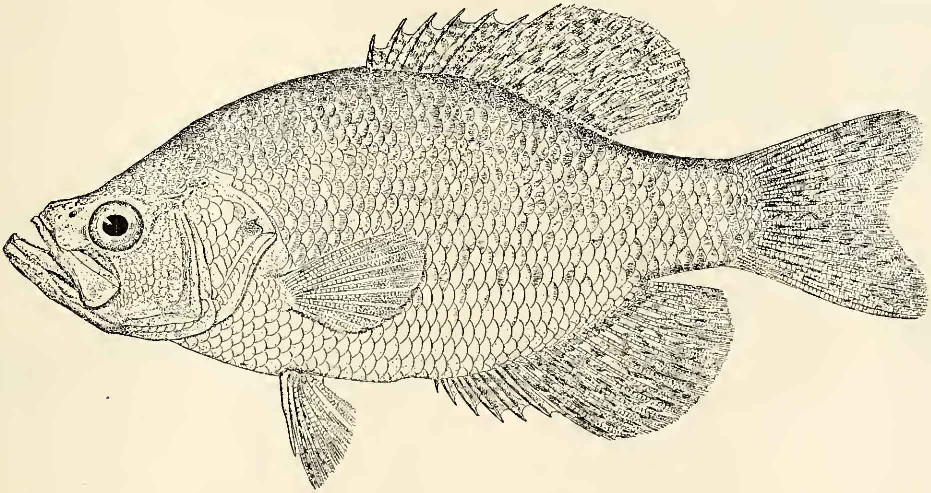
Tarpon, in spite of the great interest they have aroused, remain still obscure as far as their early life history is concerned. The popular idea that more than one species of Tarpon exist in Louisiana will be found discussed at length in the pages of the Bulletin.



SPECKLED TROUT
Eriscion nebulosus

This fine sea fish is, in spite of its name, not a trout at all but a member of the Weakfish family (Family *Otolithidae*) and closely related to the Croakers (Family *Sciaenidae*). Remarkable strings of Speckled Trout are taken in Louisiana waters and provide excellent table fish. The record for Speckled Trout is 16 pounds. The Speckled Trout is one of the many Louisiana sport fishes whose capture and life history will be found fully discussed in the new "Fishes and Fishing in Louisiana."

information that the angler will find most useful, the scientific data at the same time being presented in language as non-technical as is possible, so that it will be readily available to the amateur naturalist. "Fishes and Fishing in Louisiana" will be the most comprehensive publication of this character ever issued by a State Government and will, it is hoped, serve to spread the fame of Louisiana fishing and answer many of the questions of those anglers who have already come to enjoy the remarkable fishing resources of our State. *(Concluded on Page 32).*



CALICO BASS
Pomoxis sparoides

One of the Sunfishes, that fine fish family to which also belong the Sac-a-lait, the Black Bass and the Blue Gill, the Calico Bass is known by many confusing popular names, among others the Goggle-eye, the Strawberry Bass and Black Crappie. In the new "Fishes and Fishing in Louisiana" will be found illustrations of our important Sunfishes, together with keys for their identification and an extensive account of the methods of rearing those species most valuable for propagation in ponds. The Calico Bass is one of the most adaptable fishes for such farm ponds.

THE WILD TURKEY, ITS HUNTING AND FUTURE IN LOUISIANA

(*Continued from page 7*)

doorsman, and old time turkey hunter, and assistant secretary of the Department of Conservation prior to his death, used to tell an amusing anecdote of his first meeting with Mr. Charles Jordan. His story is that while waiting for a train on his return from a turkey hunt, he decided to practice with his turkey caller. This caller had been purchased from Jordan, whom he had never seen. After he had practiced for some time on the caller, the man standing near him walked up to him and said:

"You do that rather well."

"Do you think so?" asked Renaud.

"I do," was the reply.

"Would you like to try?" questioned Renaud, handing the call to the stranger.

"Yes," said the stranger, taking the caller and giving an exhibition of calling that was a revelation to Renaud.

"Why, that's splendid," remarked Renaud, "You call far better than I do."

"I ought to," answered the stranger, "I made that call."

"Then you must be Charles L. Jordan," exclaimed Captain Renaud.

"That's who I am," said the stranger, "And you must be John K. Renaud."

Thus began a friendship which led to many hunts together and which ended only with Jordan's death. Mr. McIlhenny has inserted Captain Renaud's picture in his publication of Jordan's book.

HUNTING METHODS AND INSTRUMENTS

The most sportsmanlike methods of hunting turkeys are from a blind,—attracting the turkey's attention by the use of callers,—and hunting with dogs. To shoot turkeys while they are roosting, either early in the morning or after sundown, is very unsportsmanlike.

Jordan enthusiastically praises the rifle as the most sportsmanlike gun to use in hunting turkeys. He discusses the merits of several old time calibres, including the thirty-eight calibre and low power ammunition, but he finally declares his preference for the 32-20. I believe that this calibre is the best to use, particularly when it is loaded with modern ammunition, as it prevents the mutilation of the game.

Jordan's choice of shotguns is the twelve gauge full-choke. With this gun he uses the No. 6 shot for the head and No. 3 and 4 shots for the body. He does not believe that a turkey should be hunted with buckshot. He gives as his reason the small chance of buckshots reaching the vital parts of the turkey at, say, forty yards. Instead it is very likely that the turkey will be knocked over temporarily and will run away to die a lingering death. Mr. Jordan's views in the matter of guns seem to be the general opinion of all the old turkey hunters with whom I have talked. Most of these old timers say they aim always at the head of the turkey, avoiding the body if possible. This, however, may be taken with a large grain of salt, especially with the turkey as scarce as it is now.

TYPES OF TURKEY CALLS

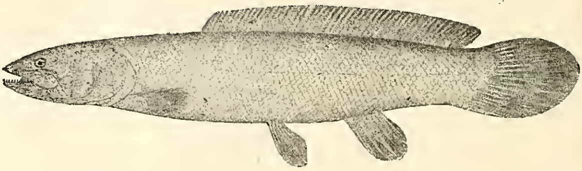
The illustrations on page 4, will give you a fair idea of what the various types of turkey calls used in Louisiana are like.

DEPARTMENT TO ISSUE NEW FISH BULLETIN

(*Continued from page 31*)

THE BOWFIN, GRINDLE OR CHOUPIQUE

Amia calva



Known throughout Louisiana by the old French name of Choupique, the Bowfin is a remarkable species and there has arisen about it a wealth of popular legend. The Bowfin is the sole survivor of a great fish family that first appeared in geology in the age of those great Lizards, the Dinosaurs, and it may thus be said to be "a living fossil." Uniting many primitive characters the Bowfin, like the Gar, is provided with a cellular air bladder by means of which it carries on accessory respiration. Indeed, live Bowfin have been reported to have been plowed up in the lowland fields of Louisiana weeks after flood waters had receded and at a time when the drainage of the land had so far progressed that cultivation was begun.

Although held in Louisiana in low esteem as food (cut, split and dried, and used chiefly in making jambalaya) it is nevertheless established that when properly smoked, Bowfin make "one of the best of smoked fishes."

Among the many superstitions concerning the Bowfin, it is told in Louisiana that if the fish be wrapped in Spanish moss and buried with proper incantations at the right phase of the moon, it will, if dug up seven days later, be found to have changed into a moccasin snake.

Bowfins are nest builders, the male protecting the nest, guarding the eggs and later caring for the young. So aggressive are they at this time that they will bite a pole pointed at them in the water.

Bowfin reach a foot and a half to two feet in length, the female being larger than the male. The male has a dense black spot of elliptical outline with yellowish to bright orange border at the base of the upper rays of the caudal fin.

Bowfin are savage and predacious and have been known to cut a two-pound fish completely in two with a single snap of their powerful jaws. They give a hard fight when caught with rod and reel.

"A" is the cedar box call and is perhaps the easiest one to use. This red cedar caller is hollowed out to about a sixteenth of an inch. No. 1 is the hinged cover. No. 2 is the cedar box, or body of the call. No. 3 is a piece of ordinary chalk which is rubbed on the edges of the thin walls of the box in order to increase friction. The cover is operated with a lateral motion back and forth across the thin edges of the box. An expert caller can produce the different notes of the turkey's call almost perfectly. For this illustration I wish to thank Mr. E. L. Magee, the representative of the Department of Conservation at Franklinton, Louisiana. His demonstration of how to "talk turkey" was very edifying to me.

"B" is a caller which was given me by Captain John K. Renaud. It is operated by sucking the breath through the mouthpiece. This call is more difficult to use than the box call. No. 1 is a section of gutta percha, or hard rubber, apparently a piece of hollow pen holder. No. 2 is a twenty-two Hi-power shell. No. 3 is a section of turned hardwood, shaped so as to slightly resemble a trumpet. This call is perhaps the most compact and durable of those here described, as well as the easiest to carry.

"C" is the call used by Mr. E. C. Corcoran, an experienced turkey hunter,—the friend and hunting companion of Mr. Magee. I find this call the most difficult to operate, although Mr. Corcoran and Mr. Magee produced an almost perfect call with it. No. 1 is a circular disk of roughened slate which should be cupped in the hollow of one hand. No. 2 is a peg of pine (red cedar, however, is preferable) which is brought to a blunt point and rotated with a circular motion over the roughened surface of the slate. No. 3 is an ordinary dried corn cob which is tapered at one end and hollowed out at both ends. It produces astonishing results.

"D" is a reproduction of the Jordan turkey wing-bone call. It was given me by Mr. Gordon Renaud, son of Captain John K. Renaud. No. 1 is a hollow turkey wing, inserted in a section of bamboo cane. This cane is inserted in another slightly larger section of cane and this section, in turn, inserted in still another section of cane of slightly greater diameter. The first section of the cane is about one inch long. The second section is approximately two and one-half inches long, and the third section practically the same length. The entire call should be nearly eight inches long. This caller is operated in practically the same manner as "B," the breath is sucked through the wing-bone mouthpiece. Experts can produce remarkable results with this device.

A member of the forestry division of the Department of Conservation living a short distance from the Pearl River bottoms recently killed a fine gobbler. The picture of this bird accompanying this article proves that the wild turkey may still be found within a short distance of New Orleans.

I wish to acknowledge the help secured from Mr. McIlhenny's book. "The Wild Turkey and Its Hunting," and the information given me by Mr. E. C. Corcoran and Mr. E. L. Magee regarding the methods of hunting the wild turkey in the Pearl River bottoms and the operation of the various callers in use in that section of the state.

If this article increases public sentiment in favor of the proper protection and propagation of the wild turkey or leads in any way to the restoration of that great game bird to its former number in the coverts of Louisiana, its purpose will have been accomplished.

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AN OLD WORLD TREE OF COMMERCE

(*Continued from page 13*)

present tung tree acreage is reached it is believed that the American oil will bring a premium of from one to two cents a pound over the dark and frequently adulterated Chinese product. Under proper conditions the tung tree bears a fair crop of nuts the fourth year from seed, and marked increases in the amount of oil produced from American-grown nuts will be made within the next few years. American manufacturers have eagerly sought for experimental and comparative purposes all the oil thus far produced in this country. Plants will probably be established in small units consisting of one decortication machine and two expellers, the whole handling 3,000 pounds of nuts an hour. Such a unit requires from 2,500 to 3,000 acres of tung oil trees for its profitable operation.

The Chinese long ago discovered the valuable water-proofing and rapid-drying qualities of this oil, and by the exercise of ingenuity in adapting it to their needs they have been able to get along satisfactorily without rubber. They use it on all forms of wood structures and masonry, and apply it to their junks and other water-craft to render them water-proof. They also lacquer furniture and paint cloth, silk and paper with it. Tung oil forms the principal ingredient of a pasty substance which serves as a filler in all wood surfaces and has been used to calk the seams of boats for thousands of years. The early writings of Marco Polo frequently mention this use of the oil. It is also used by the Chinese in concrete, soap and medicine, and it forms a rather unsatisfactory fuel for lighting purposes.

In the United States tung oil has been principally used as a necessary ingredient of water-resistant paints, varnishes and enamels, and there is no known commodity that will take its place for this purpose. It is also used in the manufacture of insulating compounds for all kinds of electrical apparatus and wiring, water-proofing for raincoats, bath curtains and other water-resisting fabrics, automobile brake bands, gaskets and fittings for machinery, and many other commodities in every-day use. Eight hundred and fifty large manufacturing concerns use it in quantities, and one electric company alone utilizes nearly 1,500,000 pounds of tung oil each year.

Substantial investments in tung oil groves in Florida have been made by paint and varnish manufacturers who are gravely concerned over the uncertainty and inadequacy of the supplies imported from China, particularly under existing political conditions in that country. The British government is also giving intensive study to the possibility of producing tung oil in its colonies, and expriments are being conducted in a number of them.

Thus the small shipment of nuts from Chinese tung oil trees which was sent to the United States Department of Agriculture in 1905, by the United States consul-general at Hankow, promises to develop into an industry of world-wide importanc.

One might ponder long on the extent this valuable chemical import from the ancient land of the Far East will be affected by the recent warlike gestures at Shanghai. This great city, now in ruins from shells and fire, is one of the chief ports of China, and millions of gallons of China wood oil are dispatched yearly to America and Europe. Too, the large valleys and great plains stretching from its waterfront root thousands upon thousands of tung oil trees. If the ruthless march of war continues in China the export of tung oil, as well as its source, the trees, will be seriously menaced. This is decidedly true should the war area engulf Hankow and Hong Kong.

But it places the experiment of the Department of Agriculture in a conspicuous position, and if growth is parallel to possibilities the old tung oil tree near Tallahassee, enclosed by a small rusty fence, may become a monument to a new and rich American forest of commerce.

ACKNOWLEDGMENT

In the June issue of the *Louisiana Conservation Review*, through an oversight, we neglected to give credit to the New Orleans *Times-Picayune* for the article by Warren C. Ogden entitled, "Queer Fish Found in Gulf Are Sometimes Too Fantastic for Belief." We take this opportunity of correcting this omission.

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POSSIBILITIES OF OYSTER CULTURE ON THE PACIFIC COAST

(Continued from Page 15)

clean shells on the ground to serve as cultch, or solid foundation on which the larvae can set. The growers estimate the time of setting on the basis of past experience, and sometimes they obtain abundant spat; equally often the reason is a failure in this respect.

If the shells are put into the water too early they become slimy and covered with silt, and are unfavorable as cultch. If the oystermen wait too long their efforts result in failure. What is needed, is a method of determining in advance when the set is to occur, and this is the major aim of the investigation.

It was estimated that if as few as two larvae in every 1,000,000 produced set and reach maturity the crop will remain constant from year to year. All the others are lost. It is not unreasonable to suppose that more than this number may be caught by using more efficient methods.

During the Summer of 1931, in Oyster Bay, near Olympia, the oystermen planted shells early in June, and caught a good set during the following two weeks. Our experiments extended throughout the summer and showed that the period of most profuse setting was from the end of July until the end of August.

If the oystermen had planted their shells at the end of July they would have caught 15 times as many spat. That is, in four years, when these spat reach market size, their crop would be 15 times as great if they had known in advance what we know now.

Our studies are designed to determine what natural factors, such as weather, currents, salinity and temperature of the water, constitute favorable setting conditions. The tremendous possible crop is being wasted only because we do not know when setting is to take place.

Egg crate fillers, made of cardboard and thinly coated with cement, have proven to be excellent cultch. These are scattered over the grounds and many spat are caught on them. The partitions of the filler stand up vertically from the bottom.

At our laboratory a modification of this method has been developed which provides a large amount of horizontal surface because of the fact that oyster larvae tend to set on under surfaces. The new method was shown last summer to be three times as effective as the standard filler, thus opening the way to an increase in the crop by three times at little if any increase in cost.

Oyster larvae swim and are washed about by the tides, and if they can not come into contact with a hard surface they are lost. Experiments were made in which shells in wire baskets were suspended from floats anchored in the channels some distance from the oyster grounds. Those shells caught more spat than were obtained even on the best seed beds.

It was also found in these tests that little setting occurred at the very surface of the water; the maximum set took place at a depth of 15 to 20 inches below the surface, and diminishing gradually with increasing depth. The possibility of collecting spat commercially in this manner is suggested as a further means of increasing the crop of oysters.

Because of the methods which are being developed and the large amount of scientific data being collected, we have every confidence that the Olympia oyster industry is at the beginning of a period of great progress. This oyster is a native of the United States, of unexcelled quality, and as a valuable natural resource deserves vigorous measures for its conservation.

OCCURRENCE OF THE WILD TURKEY IN LOUISIANA

(Continued from page 9)

Conservation in preventing forest fires on the cut-over and timbered lands of the state. Protected forests not only mean a timber crop, but also create a natural refuge and habitat for the propagation of wild turkey and all other bird and animal life.

The Department of Conservation, through its Wild Life Division, is anxious to co-operate with the landowners of the state in protecting the wild turkey. It is further planned by this Division to breed stock at its breeding farm and release these turkeys in such areas where the landowners will assist the Department in creating sanctuaries on their lands, so that these birds can increase.

The plan for this development would necessitate the landowner dedicating certain portions of his land for a sanctuary for a period of years; the birds not to be molested while in these sanctuaries and the public being allowed to shoot such birds as left the sanctuaries for adjacent areas during the hunting season.

The Department of Conservation can only go so far in the protection and development of the turkeys and it is essential that all sportsmen of the state, as well as citizens interested in our resources, co-operate and assist in reducing the law violations as much as possible.

A VISIT TO OUR BIRD ISLAND

(*Continued from page 23*)

Knot—Rather a rare visitor in Louisiana. Collected one out of a flock of seven on Grand Isle in April, 1931.

Pectoral Sandpiper—Very common. Collected six on Grand Isle in April, 1931.

Least Sandpiper—Very common on Grand Isle in April. Collected five.

Red-Back Sandpiper—Common. Collected one.

Semipalmated Sandpiper—Common along our coast. Collected quite a few.

Sanderling—Common on Grand Isle all winter. Collected eight.

Greater Yellow Legs—Quite common on our coast. Collected four.

Lesser Yellow Legs—Like the preceding, but not as large. Very common on Grand Isle in spring.

Willet—We have both the Willet and Western Willet. They are very common, and nest along our coast.

Upland Plover or Papabotte—This bird is called in Louisiana "Papabotte." At one time a prize game bird, but today it is protected by law and is becoming very rare.

Spotted Sandpiper—This beautiful Sandpiper is very common along our rivers and streams in early spring. It is sometimes called Tipup or Teetertail.

Hudsonian Curlew—Like the other Curlew, not very common in Louisiana. Collected three on Grand Isle in April, 1931.

Black-Bellied Plover—This plover is also called Big Eye or Oxeye. Very common in Louisiana. Collected four on Grand Isle.

Golden Plover—Rather a rare visitor in Louisiana. Only found here in the spring. Collected one on Grand Isle, 1931.

Killdeer—Very common all over Louisiana. Nests in Northern and Western parts of State.

Piping Plover—Qite common on Grand Isle.

Wilson Plover—Quite common. Nesting on our coast.

Ruddy Turnstone—Common along our coast in winter.

Oyster-Catcher—This peculiar bird is found on our coast and is one of our largest shore-birds.

Bob White—Common over the entire State. Collected quite a few.

Turkey and Black Vulture—Very common.

Mississippi Kite—Quite common on West side of Mississippi in Jefferson Parish. Collected five.

Marsh Hawk—This hawk is common over the entire State in winter. Very beneficial.

Florida Red-shouldered Hawk—Very common. Chiefly beneficial.

Bald Eagle—This great bird is quite common in Louisiana. Collected two; one near Covington, Louisiana—one near Pointe-a-la-hache in 1931.

Duck Hawk—A winter visitor—observed on Grand Isle in April. This bird is swift and fearless and can outwing the fastest flying ducks. (Outlawed.)

Sparrow Hawk—This beautiful little Hawk is common over the State. Chiefly beneficial.

Osprey—This master fisherman is very common on all our lakes and coast line.

Barn Owl—Very common. Beneficial.

Short-eared Owl—A winter visitor. One collected in or near Buras, Louisiana, in March, 1931.

Barred Owl—Very common. Friend of man. Should be protected.

Screech Owl—This small Owl is quite common.

Great Horned Owl—This is one of the outlawed Owls.

Burrowing Owl—This little ground Owl has been taken both on Grand Isle and one near Buras, Louisiana, in early spring.

Scarlet Tanager—This handsome bird passes through Southern part of the State both in spring and fall on flight to and from South America, and many are observed on Grand Isle in April and May, where we collected a few for the exhibit.

Summer Tanager—Like the former but not as handsome. With his greenish-yellow mate, very common in the spring on Grand Isle. The female of both these Tanagers are alike. Collected five.

Purple Martin—This is one of our early migrants, arriving in March and a few observed February 22 in Mandeville, Louisiana.

Barn Swallow—This, I think, is one of the most beautiful of the Swallows with its long forked tail and reddish breast. Arrives in April on his way North to nest.

Tree Swallow—Quite common all winter, collected two.

Cedar Waxwing—This beautiful bird at one time was very common, but today it is rather rare. Quite a few observed on Grand Isle in March and April.

Loggerhead Shrike—This industrial bird observed all over the State as one drives along. May be seen on the telephone and telegraph wires looking for bugs, mice and other things to prey upon.

Yellow-Billed Cuckoo or Rain Crow—This beneficial bird arrives in April and is common through the summer. Collected four on Grand Isle in April.

Belted Kingfisher—Common the year around. Collected three.

Southern Hairy Woodpecker—Common in our swamp lands. A great insect destroyer.

Southern Downy Woodpecker—The smallest of Woodpeckers. Collected three.

Yellow-Bellied Sapsucker—A winter visitor. This bird at times does quite a lot of damage to fruit trees. Collected four.

Pileated Woodpecker—This, next to the largest Woodpecker in Louisiana, is quite common. Collected four.

Red-Headed Woodpecker—Another one of our birds that is very beneficial and should be protected. Common.

Red-Bellied Woodpecker—Common. Collected four.

Night Hawk or Bull Bat—This bird arrives in Louisiana in April—twelve to fourteen each year. You would almost think they had a calendar to go by, as records of Mr. H. H. Kopman and myself show for many years back, so we look for them at that time.

Chimney Swift—This fast flying bird returns to Louisiana in the early spring and remains with use during the summer. Collected two at Grand Isle.

Ruby-Throated Humming Bird—This is the smallest of our birds, arrives in great numbers in April at Grand Isle. Collected two.

Scissor-Tailed Flycatcher—This beautiful bird passes through our State in April. Collected four on Grand Isle in 1931.

Kingbird—This little tyrant of the air is one hundred percent American, fears no bird no matter how large it may be. Arrives in April. Collected three.

Blue Jay—One of the best known and most beautiful birds we have. Has a sort of bad name, but we would miss him very much if he were gone.

Crows—We have two varieties in Louisiana. The Common Crow and Fish Crow. The latter is smaller and true to its name, its food consists mostly of Crayfish and other sea food. The Common Crow has quite a bad reputation as a thief; it destroys many eggs and young of other birds. Collected five.

Bobolink or Ricebird—Is never very common, but a few are observed each year on Grand Isle in April.

Cowbird—This villain has no standing in bird life—for it never builds its own nest, but makes some smaller bird rear its young.

Red-Winged Blackbird—Very common the year around. Collected quite a few.

Meadowlark—This sweet singer remains with us the year around. Make its nest on the ground.

Orchard Oriole—Arrives in April. Common.

Baltimore Oriole—This beautiful bird arrives in April. Nests in the Northern part of the State.

Florida Grackle—Common. Nest here.

Boat-Tailed Grackle—Common. Nests on the coast.

English Sparrow—Common.

Savannah Sparrow—Common in the winter.

Louisiana Seaside Sparrow—Common on the coast.

White-Crowned Sparrow—Winter visitor.

Towhee—Common. Nests here.

Cardinal—Common the year around.

Rosebreasted Grosbeck—This beautiful bird passes through our State in the spring and fall. Collected two on Grand Isle in April.

Blue Grosbeck—Common on Grand Isle in April. Collected two in April.

Indigo Bunting—Common in the summer. Nests here. Local name, Blue Pop.

Painted Bunting—Common in the summer. Local name, Red Pop.

Red-Eyed Vireo—Arrives in April. Common.

White-Eyed Vireo—Common. Nests here.

MockingBird—This is the beloved songbird of the South. Needs no description.

Catbird—This slate colored bird is another one of our sweet songsters, nesting in the northern part of the State. Common in the summer.

Brown Thrasher—Common resident. A bird that is a delight to the woodlands with its wonderful vocal rendition.

Carolina Wren—Common. This industrious little bird is a delight in all our woodlands.

Robin—A winter visitor.

Wood Thrush—This bird is the first to greet us in the morning and the last in the evening with its wonderful song.

Blue Bird—Last but not least. Another bird that needs little description. It is found in the wooded sections of our State.

TURTLES

(Continued from Page 17)

is responsible for its name. While they do not dart like the Snappers, still they are by no means gentle or docile and are not to be trusted.

Young terrapins are devoured by nearly every animal in the marshes or fish in the water. They are very small and are almost helpless for six to eight months and stay in the mud most of the time for protection. These young terrapins stay to themselves for over a year, and join the older ones at that time. For the first winter they bed to themselves in shallow lagoons and bayous, and in the second winter join the older ones in deeper water. Young terrapins always remain close to shore while the older ones are outside in a little deeper water. Terrapins will not bed where the water is still or where there is decayed grass or other obnoxious matter. The mud must be pure, clean and without odor. They bed in lagoons where there is an adjoining one or in deep bayous where the tide water will run both ways in, and out, or in bays or large lagoons near the mouth. These spots afford them most protection, as they hide in the oyster beds, and food is plentiful during the winter months.

In Louisiana this species is cultivated for commercial purposes, and the Terrapin Farms of Louisiana are very well known. They should be cooked in wine, but the coming of prohibition has nearly destroyed the export business of Louisiana Terrapins to other states.

The Slider Terrapin, Fresh Water Terrapin, Mobilian Turtle or pond turtle are the common turtles of this State. They are found in our bottomlands, marshes, ponds and lakes in the fresh water sections and are excellent seafoods. Their habits are about the same as other species, only that these turtles sometimes go a great distance from the water to deposit their eggs and may be seen at night crossing the roads, in their search for a suitable spot for their nest.

The Soft Shell Turtle does not leave the water to the extent that the fresh water terrapin does. It seems to prefer the rivers and lakes to shallow water ponds, marshes and bottomlands. The Southern Soft Shell Turtle is the largest of this species, sometimes growing a shell 20 inches long, and weighing as much as 50 pounds. Their coloring is light brown and the young are beautifully marked. This species seldom leaves the water.

Under Conservation Laws turtles may be taken at any season, except that Diamond Back Terrapins can not be taken by means of traps nor shipped outside the State of Louisiana between April 15th and June 15th, and any caught during that period must be returned to the waters alive or held in captivity under natural conditions until the eggs are deposited so that the young may return to the waters. Persons engaged in the culture of this species have a legal ownership of them and may at all times, dispose of them, except during the period mentioned above.

Izaak Walton League to Cooperate

Heeding the appeal of Paul G. Redington, Chief of the U. S. Biological Survey, that states and sportsmen's groups acquire small tracts of land suitable for the uses of waterfowl, thousands of acres of feeding grounds and refuges for the ducks are expected to be acquired before the end of the year, says the Izaak Walton League of America. When Mr. Redington told the Izaak Walton League Convention in April that the government had no money to push a national system of waterfowl refuges at this time, the Waltonians agreed to assist the government by urging chapters to acquire small tracts of marshy lands which would be set aside for the waterfowl.

"This activity is already under way," announced S. B. Locke, Conservation Director of the League, this week. Realizing the urgent need to reclaim and create the smaller type of marsh areas for waterfowl and mindful of the fact that each community can do its share in restoring or improving a water and marsh area at a cost within the resources of local sportsmen, chapters of the League will undertake such a program as part of the national plan to improve the waterfowl situation.

Mr. Redington has called upon many conservation organizations and agencies to help increase the total acreage suitable for waterfowl.

"For American wild fowl this is a critical time," he said. "The vitally important work of salvaging and increasing waterfowl areas in this country must not be permitted to lapse during this period while the Federal Government projects are held in abeyance. The water birds will continue to decrease unless positive measures are taken to counteract the effects of these factors."

Forest Service Names Quick-Growing Trees

Although many valuable trees are comparatively slow growers, some of the best kinds develop to merchantable sizes with surprising rapidity, says the Forest Service, United States Department of Agriculture.

Douglas fir in the Pacific Northwest will grow in dense seedling stands, in some cases reach 90 feet in height in 30 years. At 50 years it will produce 1 to 3 cords of wood per acre per year. In a dense stand the trees produce a high proportion of clear lumber.

Southern pines are among the quickest-growing trees, saplings 20 years old often attaining a height of 40 feet. The annual yield in good second-growth stands may by this time reach 1 to 3 cords per acre.

Spruce and fir seedlings in the Northeast are often held back for 15 to 40 years by competition, but they grow up quickly when the old trees are removed. The advance reproduction, as such a stand of little trees is called, when freed by the harvesting of the mature crop, in about 40 years develops into a new pulpwood forest producing 1 or more cords of wood annually per acre.

Hardwoods are generally slower growing than the pine family. However, the yellow poplar, or tulip tree, in second-growth stands reaches heights of 50 to 100 feet in 30 to 50 years. Oaks, walnut, and hickory of the central hardwood belt may grow a foot or more per year.

THE THROSTLE

"Summer is coming, summer is coming,
I know it, I know it, I know it.
Light again, leaf again, life again, love again".
Yes, my wild little Poet.

Sing the new year in under the blue.
Last year you sang it as gladly.
"New, new, new, new!" It is then so new
That you should carol so madly?

"Love again, song again, nest again, young again"!
Never a prophet so crazy!
And hardly a daisy as yet, little friend,
See, there is hardly a daisy.

"Here again, here, here, here, happy year"!
O warble unchidden, unbidden!
Summer is coming, is coming, my dear,
And all the winters are hidden.

—ALFRED, LORD TENNYSON.

Darwin's Frog

In nature the females usually attend to the young, but a remarkable exception is that of the strange creature known as Darwin's frog, a native of Chile. This frog lays her eggs, and the male collects them in a chamber in his throat—a strange nursery in which the young are reared, emerging as fully developed frogs. There are also foreign species of frogs which spend their whole time in trees, but it is necessary for the tiny tadpoles when they emerge from the eggs, to have liquid in which to live. This difficulty is overcome by each youngster living in its egg, which is much larger than usual, and in this nursery the frog goes through the various stages until it is able to leave as a perfect frog ready to carry on its existence in the trees.

MORNING ON THE LIEVRE

From amid a stretch of reeds,
Where the lazy river sucks
All the water as it bleeds
From a little curling creek,
And the muskrats peer and sneak
In around the sunken wrecks
Of a tree that swept the skies
Long ago,
On a sudden seven ducks
With a splashy rustle rise,
Stretching out their seven necks,
One before, and two behind,
And the others all arow,
And as steady as the wind
With a swivelling wistle go,
Through the purple shadow led,
Till we only hear their whir
In behind a rocky spur,
Just ahead.

—ARCHIBALD LAMPMAN.

HONEY ISLAND AS A PARK

(Continued from page 1)

veniently visited, largely of course by water, but also when and where possible to render it penetrable, on foot and by vehicle on solid earth. The place should become a paradise for botanists, ornithologists and students of the lesser mammalia as well as for those specializing in amphibians and perhaps in fish, though as to the latter we are less certain due to the frequent washing out of those streams by spring freshets.

As a place of pure beauty easily accessible to New Orleans, Honey Island cannot be overestimated. It should become a Mecca for thousands during the winter months and even during the summer for the more courageous who during the heated season would find there a tropical richness of life well repaying the severities of climate.—N. O. Times-Picayune.

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